IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

GIRAFA.COM, INC.	)	
	)	
Plaintiff,	)	
	)	
v.	)	C.A. No. 07-787-SLR
	)	
AMAZON WEB SERVICES LLC,	)	**JURY TRIAL DEMANDED**
AMAZON.COM, INC., ALEXA INTERNET,	)	
INC., IAC SEARCH & MEDIA, INC.,	)	
SNAP TECHNOLOGIES, INC., YAHOO! INC.,	)	
SMARTDEVIL INC., EXALEAD, INC., and	)	
EXALEAD S.A.,	)	
	)	
Defendants.	)	

**AMAZON WEB SERVICES LLC, AMAZON.COM, INC., AND ALEXA INTERNET
INC.'S MOTION FOR LEAVE TO FILE SURREPLY IN RESPONSE TO
GIRAFA.COM, INC.'S REPLY BRIEF IN SUPPORT OF ITS MOTION
<u>FOR PRELIMINARY INJUNCTION</u>**

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Dated: July 15, 2008

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*Attorneys for Defendants
Amazon Web Services LLC, Amazon.com, Inc.,
and Alexa Internet, Inc.*

1.   The Amazon Defendants (collectively Amazon Web Services LLC; Amazon.com, Inc.; and Alexa Internet, Inc.) move for leave to file the attached Surreply and the attached Declaration of R. David Donoghue in Support of Amazon Web Services LLC, Amazon.com, Inc., and Alexa Internet Inc.'s Surreply in Response to Girafa.com, Inc.'s Reply Brief in Support of Its Motion for Preliminary Injunction ("Donoghue Declaration") to respond to new and contradictory claim construction positions and gross inaccuracies regarding the Amazon Defendants' prior art, raised for the first time by Girafa in its Reply Brief in Support of Its Motion for Preliminary Injunction ("Reply") and in the Rebuttal Declaration of Brad A. Myers.[1] A copy of the proposed Surreply is attached hereto as Exhibit A. A Copy of the Donoghue Declaration is attached hereto as Exhibit B.

2.   The attached Surreply responds to the Rebuttal Declaration of Dr. Brad A. Myers in which Dr. Myers materially contradicts his deposition testimony and the Reply, and in which Girafa relies upon an out-dated version of the Manual of Patent Examining Procedure and ignores strong evidence to argue that the Schmid reference, which invalidates U.S. Patent No. 6,864,904, is not prior art. The Amazon Defendants seek to reply to these recent and unjustified contentions by way of the attached Surreply and supporting declaration.

WHEREFORE, for the foregoing reasons, the Amazon Defendants respectfully request that this Motion for Leave to File Surreply be granted.[2]

---

[1] Pursuant to D. Del. LR 7.1.1, counsel for the Amazon Defendants contacted counsel for Girafa twice prior to filing the instant Motion. Counsel for Girafa did not respond to the Amazon Defendants' requests for consent to the filing of this motion. When seeking that consent, Amazon's counsel stated that Amazon would not object to Girafa responding to Amazon's proposed Surreply, as long as any such response did not again raise new issues.

[2] The Amazon Defendants respectfully request that upon granting this Motion, the proposed Surreply and supporting Donoghue Declaration be deemed filed and served and that the Court use the attached Surreply and Declaration (Exs. A & B hereto) for filing.

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Dated: July 15, 2008
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Attorneys for Defendants
Amazon Web Services LLC, Amazon.com, Inc.,
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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CERTIFICATE OF SERVICE

I, David E. Moore, hereby certify that on July 15, 2008, the attached document was

electronically filed with the Clerk of the Court using CM/ECF which will send notification to the

registered attorney(s) of record that the document has been filed and is available for viewing and

downloading.

I further certify that on July 15, 2008, the attached document was Electronically Mailed

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842506 / 32639

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

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INC., IAC SEARCH & MEDIA, INC.,	)	
SNAP TECHNOLOGIES, INC., YAHOO! INC.,	)	
SMARTDEVIL INC., EXALEAD, INC., and	)	
EXALEAD S.A.,	)	
	)	
Defendants.	)	

**AMAZON WEB SERVICES LLC, AMAZON.COM, INC., ALEXA INTERNET INC.'S
SURREPLY IN RESPONSE TO GIRAFA.COM, INC.'S REPLY BRIEF
IN SUPPORT OF ITS MOTION FOR PRELIMINARY INJUNCTION**

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TABLE OF AUTHORITIES

INTRODUCTION

The Amazon Defendants (collectively Amazon Web Services LLC; Amazon.com, Inc.; and Alexa Internet, Inc.) are compelled to file this Surreply because Plaintiff Girafa.com, Inc.'s Reply Brief in Support of Its Motion for Preliminary Injunction ("Reply") is based upon new and contradictory claim construction positions and gross inaccuracies regarding the Amazon Defendants' prior art. Snap Technologies joins in this surreply and is filing a separate surreply related to issues that are specific to Snap.

First, in his initial report and his deposition, Girafa's expert, Dr. Brad A. Myers, opined that a "web server separated from an image server," as used in Girafa's U.S. Patent No. 6,864,904 to Ran et al. (the "904 Patent"), requires only logical separation (web server and image server processes that can be identified as separate) but not physical separation (one piece of hardware acting as a web server and a second acting as an image server). But, presumably after reading the opposition papers of the Amazon Defendants, including the Expert Report of Joseph Hardin, and Snap, Dr. Myers realized that his definition invalidated Girafa's '904 Patent and, therefore, reversed his position. In his Rebuttal Declaration ("Myers Rebuttal"), Dr. Myers flatly contradicts his deposition testimony, opining that the separation must be physical, thus changing his claim construction. The fact that Girafa cannot settle on a single construction for "image server" and its separation from the web server alone warrants denial of Girafa's motion for preliminary injunction, as a moving target certainly cannot be the basis for such extraordinary relief.

Second, Girafa, again to avoid having its patent invalidated, attempted in its reply papers to import non-existent limitations from the '904 Patent specification to mislead the Court into determining that the '904 Patent claims only cover the situation where the "thumbnail visual image" is of a home page that corresponds to a "hyperlink" where the "hyperlink" is not to a

home page of that web site. Girafa's machinations are improper and incorrect, and the prior art

that the Amazon Defendants brought to bear on the '904 Patent (e.g., Kraft and Miller) remains

applicable.

Finally, Girafa relies upon an out-dated version of the Manual of Patent Examining

Procedure ("MPEP"), instead of the current version, and ignores strong evidence to argue that

the Schmid reference, which invalidates the '904 Patent, is not prior art. In fact, the current

version of the MPEP and the Amazon Defendants' evidence compels a determination that the

Schmid reference is prior art against the '904 Patent.

ARGUMENT

I.   Girafa's New Construction of "Separate" Servers is Both Improper and Wrong.

After taking the position that separate servers require only logical separation, Girafa and

Dr. Myers startlingly changed their definition from *logical* to *physical* separation on Reply. In

his deposition, Dr. Myers explained that "separate" in the context of an image server and a

regular "web server" (as it was used in the '904 Patent, Dr. Myers' initial report, and Girafa's

opening brief) means "serv[ing] different functions." Declaration of R. David Donoghue in

Support of Amazon Web Services LLC, Amazon.com, Inc., Alexa Internet Inc. Surreply in

Response to Girafa.com, Inc.'s Reply Brief in Support of Its Motion for Preliminary Injunction

("Donoghue Decl.") Ex. A, Myers Dep. 13:7-11, 37:5-10. Dr. Myers further clarified that the

definition of separate was not tied to hardware and even that each server could be run by the

same multiprocessor microchip (the type of chip that is in any modern personal computer or

laptop):

> Q: How about the scenario where you have a multiprocessor,
>   one-chip multiprocessor chip, right? Are you with me?
>
> A: Yes.

> Q: And that *same multiprocessor is running a web server and is running an image server*. Is that separate? Are the web server and the image server separate if that were the case?
>
> A: I think if you can distinguish, *if somebody, you know, an engineer or user, looking at the system can distinguish one from the other, then they are separate*. So I think, you know, if they are running in a way that they are separate, that's sufficient.

Donoghue Decl. Ex. A, Myers Dep. 36:12-37:4 (emphasis added).

In his Rebuttal Declaration—perhaps, after seeing that his logical separation position invalidated the '904 Patent—Dr. Myers changed his definition of "separate" from logical separation to physical separation. For instance, with respect to Kraft, Dr. Myers argues that the image and web servers cannot be separate because Kraft only describes a single "Server Side," which, although it contains multiple components, does not specifically show an image server and a web server in separate boxes on a patent figure. Myers Rebuttal ¶ 31; *see also* Reply, 14; Myers Rebuttal ¶¶ 55, 80. This argument is solely based upon physical separation, which Dr. Myers testified under oath was not required by the claims of the '904 Patent. Donoghue Decl. Ex. A, Myers Dep. 35:12-37:4. As explained in Hardin's Expert Report, Kraft does show logically separated web and image servers. Expert Report of Joseph Hardin on Invalidity of U.S. Patent No. 6,864,904 ("Hardin Decl.") Ex. W, at 8.

Similarly, in reference to Schmid (Hardin Decl. Ex. V) the location of the Thumbnail Server Host with respect to the web server that forms the annotated web pages (either at a client computer or on a remote web server) is not relevant to the fact that Schmid teaches logically separate web and image servers. Hardin Decl. Ex. U, at 8.

And, even if physical separation were required, substituting physically separate web and image servers for logically separate servers would be an insignificant, and obvious, change. Hardin Decl. ¶¶ 17-18. By the inventors' own statement, the importance of separate functions is

to overcome the consequence of a web server and image server "each limited by the limitations of the other."   Reply, 15 (citing Myers Decl. Ex. C at 112).   Once the two servers are functionally separate, they no longer depend on one another and, therefore, cannot limit one another. In other words, when one server is used as both the web server and image server, only one of the servers can operate at a time. So, for example, a user cannot download any images from the image server until the web server has finished downloading the web page. But when the web server and image server are logically, though not necessarily physically, separate both the web server and the image server can download content at the same time using the same multiprocessor. And physically separating two logically separate servers is a ministerial task for a person of ordinary skill in the art.

II.   Nothing in the '904 Patent Excludes a Home Page from Being the Linked Page

Girafa, in a misleading effort to distinguish some of the prior art relied on by the Amazon Defendants (e.g., Kraft and Miller) and salvage the validity of the '904 Patent, contends that its patent does not encompass the situation where the "thumbnail visual image" is of a home page that corresponds to a "hyperlink" where the "hyperlink" is the home page of a web site. Instead, Girafa argues that the '904 patent only encompasses the situation where the "thumbnail visual image" is of a home page that corresponds to a "hyperlink" where the "hyperlink" is not to the home page of a web site. By way of illustration, Girafa is contending that its patent does not cover the following situation: (1) a user performs a search on Google and receives a Google search results page having ten search results, each with its own hyperlink; (2) two of the search results are for home pages of particular web sites, and eight of the results are for pages deep in a particular web site; (3) thumbnails are rendered for all ten of the search results; and (4) thumbnails of home pages are shown for the two hyperlinked search results directed to home pages of a particular web sites (which are not covered by the '904 Patent).

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To support its contention, Girafa does not point to a particular construction of any claim term such as "hyperlink" and indeed did not, in its opening papers, propose any such construction, but rather refers to portions of the specification (*see* Hardin Decl. Ex. A, the '904 Patent at Col. 5:59-65 and Col. 6:64-Col. 7:62), and attempts to import those portions of the specification into the claims, which is improper. *Acumed LLC v. Stryker Corp.*, 483 F.3d 800, 808-09 (Fed. Cir. 2007). Even if it were proper, those portions of the specification do not support Girafa's position.

In Col. 5:59-65, the '904 Patent identifies "web pages which are referenced in hyperlinks contained in the web page" and "images [] of home pages linked with [the web page]." There is nothing in this section of the patent that limits the "hyperlinks" to *non*-home pages. In Col. 6:64-Col. 7:62, there is a discussion of the trimming of URL's to create thumbnails of home pages of web sites. There is likewise nothing in this discussion that requires limiting a "hyperlink" to *non*-home pages. Thus, Girafa's references to the specification (*see* Reply footnote 14) do not support its attempt to limit its patent to only thumbnails of home pages of hyperlinked web pages where the hyperlink is <u>not</u> to a home page of a web site.

In a further attempt to support their argument, Girafa contends that the Patent Examiner agreed that one of the inventive features of Girafa's patent was thumbnails of linked pages where the linked pages are not home pages (Reply, 12-13).[1] The Patent Examiner, however, did not take such a position. In his statement of reasons for allowing Girafa's patent, the Patent Examiner never stated that he was allowing the patent because it claimed thumbnails of linked

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[1] Girafa's statement at pages 11 and 12 of its reply brief that Prof. Hardin agreed that there were two novel and inventive elements of the '904 Patent is misleading. Paragraph 12 of Prof. Hardin's declaration Decl. makes clear that the inventor believed that there were two novel and inventive elements of the '904 Patent, not that he did.

pages where the linked pages are <u>not</u> home pages. In fact, the Patent Examiner's reasons for

allowance are consistent with the Amazon Defendants' position and inconsistent with Girafa's

position. The Patent Examiner stated:

> The following is an examiner's statement of reasons for allowance:
> Prior art references do not anticipate or suggest the limitation
> "providing a thumbnail visual image of the home page of at least
> one web site which is represented by at least one hyperlink . . .
> . . .
> Prior art references do not anticipate or suggest the limitation
> "providing thumbnail visual image comprising . . . thumbnail
> visual images of web pages which represent hyperlinks contained
> in the web page . . .

Myers Decl. (submitted with Girafa's moving papers) Ex. C, 115, 116.

The Patent Examiner did not state that he was allowing the patent because the hyperlinks

were not home pages. Thus, to the extent Girafa claims in their Reply, 12-13, or through Prof.

Myers' rebuttal declaration (at ¶¶ 22-23 in particular), that the Patent Examiner "understood"

that Girafa's invention only applied to thumbnails of linked pages where the linked pages are <u>not</u>

home pages, Girafa is wrong.

**III.   <u>Abundant Evidence Shows that the Schmid Reference Was Published Prior to the
Filing Date of the '904 Patent.</u>**

The evidence shows that Schmid was published before the '904 Patent's filing date. In

its Reply, Girafa argues that the Court cannot consider Schmid because Schmid does not have a

publication date on its face. Reply, 10. In order to make its argument, Girafa cites language

from an outdated version of the MPEP (8th ed., 2nd rev., 2004), without disclosing to the Court

that the MPEP has undergone four revisions since Girafa's preferred version. Reply, 10 (citing

Reply Ex. 14, MPEP § 2128 (8th ed., 2nd rev., 2004) (".. if [sic] the publication itself does not

include a publication date (or retrieval date), it cannot be relied upon as prior art. . .")).

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The current version of the MPEP, however, recognizes that evidence of publication can come from sources beyond the face of the reference. Donoghue Decl. Ex. B, MPEP § 2128 (8th ed., 6th rev., 2007) ("*[a]bsent evidence of the date that the disclosure was publicly posted*, if the publication itself does not include a publication date (or retrieval date), it cannot be relied upon as prior art . . . .") (emphasis added); *see also In re Hall*, 781 F.2d 897, 899 (Fed. Cir. 1986) (stating that the Section 102 publication bar is a legal determination based on fact issues that must be approached on a "case-by-case basis").

As required by the courts and the MPEP, competent evidence establishes that the Schmid reference became publicly available before the filing date of the '904 Patent. The Schmid reference, Hardin Decl. Ex. V, is titled "Web Representation with Dynamic Thumbnails, Stefan Schmid, Department of Distributed Systems, University of Ulm, Germany." *Id.* Four U.S. Patents – Nos. 7,124,165; 7,047,502; 6,349,330; and 6,301,607 – cite to a reference with the identical title by Stefan Schmid of the Department of Distributed Systems, University of Ulm, Germany. And, all four show publication dates before the '904 Patent's earliest priority date, December 6, 1999. Donoghue Decl. Exs. C-F.

- U.S. Patents 7,124,165 and 6,301,607 each list March 1998 as the publication date of the Schmid reference and indicate that it has 17 pages (Donoghue Decl. Exs. C & F);

- U.S. Patent 7,047,502 lists July 1998 as the publication date of the Schmid reference without listing a number of pages (Donoghue Decl. Ex. D); and

- U.S. Patent 6,349,330 lists June 1998 as the publication date of the Schmid reference and indicates that it has 26 pages (Donoghue Decl. Ex. E).

Additionally, the Schmid reference from Hardin Decl. Ex. V lists four references of its own with dates ranging from 1996 to 1997 (and a fifth with no date included). The Schmid reference from Hardin Decl. Ex. V is available at http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.27.2654 ("Citeseer"). Donoghue Decl. Ex. G. Citeseer also lists a currently inactive link to the Lancaster

University Computing Department website as a location from which Schmid can be obtained. No other versions of Schmid are readily available on the web. Even though Schmid does not have a publication date on its face, the evidence shows that it was published between March and July of 1998, well before the '904 Patent's December 1999 earliest priority date.

CONCLUSION

For the reasons set forth herein, and in the Amazon Defendants' and Snap's opposition papers, the Court should deny Girafa's motion for preliminary injunction.

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Dated: July 15, 2008
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8

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SNAP TECHNOLOGIES, INC., YAHOO! INC.,   )
SMARTDEVIL INC., EXALEAD, INC., and   )
EXALEAD S.A.,   )
)
              Defendants.   )

**DECLARATION OF R. DAVID DONOGHUE IN SUPPORT OF
AMAZON WEB SERVICES LLC, AMAZON.COM, INC., AND ALEXA INTERNET
INC.'S SURREPLY MEMORANDUM IN OPPOSITION TO
GIRAFA.COM, INC.'S MOTION FOR PRELIMINARY INJUNCTION**

By this declaration, R. David Donoghue declares as follows:

1.   I am one of the attorneys representing Defendants Amazon Web Services, LLC,

Amazon.com, Inc., and Alexa Internet, Inc. in this case

2.   Attached as Exhibit A is a true and correct copy of selected pages from the

transcript of the April 18, 2008 deposition of Brad Allen Myers, Ph.D.

3.   Attached as Exhibit B is a true and correct copy of Manual of Patent Examining

Procedure § 2128 (8th ed., 6th rev., 2007).

4.   Attached as Exhibit C is a true and correct copy of U.S. Patent No. 7,124,165 to

Barraclough et al.

5.   Attached as Exhibit D is a true and correct copy of U.S. Patent No. 7,047,502 to

Petropoulos et al.

6.   Attached as Exhibit E is a true and correct copy of U.S. Patent No. 6,349,330 to Bernadett et al.

7.   Attached as Exhibit F is a true and correct copy of U.S. Patent No. 6,301,607 to Barraclough et al.

8.   Attached as Exhibit G is a true and correct copy of an online page from http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.27.265.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: July 15, 2008   Respectfully submitted,

By: /s/ R. David Donoghue

Exhibit A

CONFIDENTIAL VIDEOTAPED DEPOSITION OF BRAD ALLAN MYERS, PH.D. - VOLUME 1
CONDUCTED ON FRIDAY, APRIL 18, 2008

1 (Pages 1 to 4)

1

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1        CONFIDENTIAL * ATTORNEYS EYES ONLY
2       IN THE UNITED STATES DISTRICT COURT
3          FOR THE DISTRICT OF DELAWARE
4
5    GIRAFA.COM, INC.,       Case No. 07-787-(SLR)
6        Plaintiff,
7    v.
8    AMAZON WEB SERVICES LLC,
9    AMAZON.COM, INC., ALEXA
10   INTERNET, INC., IAC SEARCH &
11   MEDIA, INC., SNAP TECHNOLOGIES,
12   INC., YAHOO!, INC., EXALEAD S.A.,
13   and EXALEAD, INC.,
14       Defendants.
15
16        VIDEOTAPED DEPOSITION OF BRAD A. MYERS
17              Volume I
18             Washington, DC
19          Friday, April 18, 2008
20               8:00 a.m.
21   Job No. 1-126469
22   Pages 1-361
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2

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1        CONFIDENTIAL * ATTORNEYS EYES ONLY
2    Reported by:  Linda S. Kinkade, CSR, RMR, CRR
3    Videographer:  Scott Forman, L.A.D. Reporting
4
5
6        Videotaped Deposition of BRAD A. MYERS, held
7    at the offices of:
8
9
10   Sughrue Mion, PLLC
11   2100 Pennsylvania Avenue, Northwest
12   Washington, D.C. 20037-3213
13
14
15
16
17        Pursuant to applicable Rules of Civil
18   Procedure, before Linda S. Kinkade, CSR, RMR, CRR, a
19   Notary Public, in and for the District of Columbia.
20
21
22
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3

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1        CONFIDENTIAL * ATTORNEYS EYES ONLY
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1        CONFIDENTIAL * ATTORNEYS EYES ONLY
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2 (Pages 5 to 8)

5

1 CONFIDENTIAL * ATTORNEYS EYES ONLY
2
3 APPEARANCES (continued):
4
5   On Behalf of Defendants EXALEAD S.A. and EXALEAD,
6 INC.:
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1 CONFIDENTIAL * ATTORNEYS EYES ONLY
2
3   I N D E X (continued)
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1 CONFIDENTIAL * ATTORNEYS EYES ONLY
2   I N D E X
3
8
9   E X H I B I T S
10   (Attached to transcript)
11

8

1 CONFIDENTIAL * ATTORNEYS EYES ONLY
2   P R O C E E D I N G S
3   VIDEOGRAPHER: Here begins tape number one
4 in the deposition of Brad A. Myers in the matter of
5 Girafa.com, Inc. vs. Amazon Web Services, LLC, et al.
6 pending in the U.S. District Court for the District of
7 Delaware, case number 07-787. Today's date is April
8 18th, 2008. The time is 8:06 a.m.
9   The video operator is Scott Forman of L.A.D.
10 Reporting. This deposition is taking place at Sughrue
11 Mion, 2100 Pennsylvania Avenue, Northwest, Washington,
12 DC.
13   Would counsel identify themselves and state
14 whom they represent.
15   MR. RABENA: On behalf of the plaintiff and
16 the witness, I'm John Rabena with Sughrue Mion, and
17 I'm here with Chandran Iyer, also of Sughrue Mion.
18   MR. PASTERNAK: Tom Pasternak, DLA Piper,
19 for Amazon Web Services, LLC, Amazon.com, Inc. and
20 Alexa Internet, Inc.
21   MR. DONOGHUE: David Donoghue also of DLA
22 Piper and also representing Amazon Web Services,

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3 (Pages 9 to 12)

9
1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2 Amazon.com and Alexa Internet.
3   MR. NIELSEN: Mark Nielsen, Cislo & Thomas,
4 representing Snap Technologies.
5   MS. MONAHAN: Alison Monahan, Quinn Emanuel,
6 representing IAC Search & Media.
7   MR. JOHNSON: Harold Johnson, Brinks, Hofer,
8 Gilson & Lione, representing Exalead and Exalead S.A.
9   VIDEOGRAPHER: Thank you very much. The
10 court reporter today is Linda Kinkade of L.A.D.
11 Reporting.
12   BRAD ALLAN MYERS, Ph.D.
13   Being first duly sworn, testified as follows:
14   EXAMINATION
15 BY MR. PASTERNAK:
16   Q Good morning, doctor. Could you state your
17 full name?
18   A Brad Allan Myers.
19   Q And what's your home address?
20   A 400 South Homewood Avenue, Pittsburgh,
21 Pennsylvania 15208.
22   Q Do you have a business?

10
1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   A Yeah. I'm a professor at Carnegie Mellon
3 University.
4   Q And what's the address there?
5   A 5000 Forbes Avenue, Pittsburgh,
6 Pennsylvania 15213.
7   Q How many times have you been deposed?
8   A About ten.
9   Q So you're familiar with the drill?
10   A Yes.
11   Q Do you have any -- are you on any
12 medications today?
13   A No.
14   Q Is there anything else going on in your
15 life such that you can't tell the truth today?
16   A No.
17   Q I'm going to mark about five exhibits up
18 front that you may want to refer to throughout just to
19 make it a little easier, so bear with me while I go
20 through some housekeeping here.
21   The first one is, I'm going to mark as -- what
22 should I call it -- Myer Exhibit 1, it's the

11
1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2 deposition notice.
3   (Exhibit Nos. 1 through 5, inclusive, marked
4 for identification and attached hereto.)
5   MR. PASTERNAK: And I've got some copies. I
6 don't know if I have enough for the whole table.
7   Exhibit 2, Myer Exhibit 2, are copies of all
8 the exhibits to your declaration.
9   Myer Exhibit 3 -- I'm sorry. I'm saying
10 "Myer." It should be Myers, correct?
11   THE WITNESS: M-Y-E-R-S.
12   MR. PASTERNAK: Myers Exhibit 3 is the
13 actual declaration.
14   Myers Exhibit 4 is plaintiff's opening
15 memorandum here.
16   And, last but not least, is the patent, and
17 that will be Myers Exhibit 5, U.S. patent 6,864,904.
18   So you don't need to look at those particularly
19 right now, but, as we get into it, I'm sure we'll be
20 wanting to look at some of them.
21 BY MR. PASTERNAK:
22   Q So, why don't we talk about image servers.

12
1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2 What's an image server?
3   A Well, I think I define that pretty well in
4 my report.
5   Q Can you define it?
6   A Sure. It's a server that provides images.
7   Q Is that your definition?
8   A Let me see what I formally said.
9   Q All right. And now what are you looking
10 at?
11   A At my report, my declaration.
12   Q All right. Let me grab that, too. So
13 you're looking at Exhibit 3?
14   A Yes.
15   Q Okay.
16   A In paragraph 48 on page 11 I define an
17 image server as a type of server that stores and
18 delivers images.
19   Q And that's the first sentence of paragraph
20 48?
21   A Right.
22   Q Okay. Is that your definition?

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CONDUCTED ON FRIDAY, APRIL 18, 2008

4 (Pages 13 to 16)

13

1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   A   Yes.
3   Q   You're sticking with it?
4   A   Sure.
5   Q   Who came up with that definition?
6   A   I did.
7   Q   Okay. Does the patent distinguish between
8   an image server and a regular web server, the '904
9   patent?
10   A   Well, it distinguishes that they are
11   separate. Is that the question?
12   Q   Does it distinguish between them in any
13   other fashion? Does it technically describe what the
14   difference is between a web server and an image
15   server?
16   A   Well, it talks about the image server
17   providing images and the web server providing the rest
18   of the web pages. I'm not sure what the context of
19   your question is.
20   Q   Well --
21   A   It says they are the same kind of machine.
22   Is that what you're asking?

14

1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   Q   Does the patent say that?
3   A   Well, it says in the preferred embodiment,
4   for example, on column 5, around line 53, it says the
5   image server 104 interfaces with image database --
6   that's wrong -- it's above that.
7   Yeah, here it is, line 46, the web browser --
8   wait. No. I know it's here somewhere.
9   Okay. So web server is at the top of column 6
10   in the preferred embodiment, is a Dell Power Edge 2450
11   running Apache 1.3.12. O you see that?
12   Q   I see that.
13   A   Yeah. And then the image server is
14   described a few lines below, like around 17. It says,
15   interfaces with an image server 210, such as a Power
16   Edge 2450 running Apache 1.3.12.
17   So it pretty much says that the image server
18   and the web server are using the same hardware and
19   software.
20   Q   And are these pieces of hardware that
21   you're familiar with?
22   A   Well, generally. I mean, I know what

15

1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   Apache is. I know what Dell computers are.
3   Q   Is there any difference between the
4   machinery that the patent describes to carry out the
5   image server and the web server?
6   A   Well, it looks like they are described here
7   identically, so I would say no.
8   Q   So what is the difference between the two
9   as described in the patent?
10   A   Well, it's what I said before, the image
11   server provides the images and the web server provides
12   the rest of the web pages.
13   Q   So the only difference is the function?
14   A   As far as I could tell.
15   Q   Well, as Girafa's expert here, that's the
16   question. Is there any difference between the -- what
17   is the difference between the web server and the image
18   server as described by the patent? Is the only
19   difference the function?
20   A   I think that's fair.
21   Q   Do you know the date that the -- what is
22   the earliest priority date for this patent?

16

1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   A   Well, the patent says that it claims
3   priority from the provisional application filed
4   December 6, 1999.
5   Q   Is that the earliest priority date?
6   A   As far as I know.
7   Q   Have you seen the provisional application?
8   A   Yes.
9   Q   Is the -- are the claims supported by the
10   disclosure of the provisional application?
11   A   I think so.
12   Q   Did you review that and make that
13   comparison?
14   A   Not in detail.
15   Q   Do you have an opinion on that issue?
16   A   Yeah. I think -- I think they are
17   supported, but I haven't done a detailed
18   claim-by-claim analysis of every element of the
19   claims.
20   Q   What sort of analysis have you done, then?
21   A   Well, I just generally read it.
22   Q   You read the provisional.

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8 (Pages 29 to 32)

29
1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   which is -- I'll read the full title -- Plaintiff
3   Girafa.com, Inc.'s Opening Memorandum of Law in
4   Support of its Motion for Preliminary Injunction.
5   Go to page 18. Have you seen Exhibit 4 before?
6   **A I briefly skimmed it yesterday.**
7   Q Did you help draft it?
8   **A No.**
9   Q Yesterday was the first time you saw it?
10   **A Exhibit 4, yes.**
11   Q All right. Now, to yourself I'd like you
12 to compare the claim construction in paragraph 46 --
13 I'm sorry -- paragraph 48 of an image server with the
14 definition on page 18 of image server.
15   **A Okay.**
16   Q Top of 18, first paragraph.
17   **A Yes.**
18   Q Just mentally compare the two.
19   **A They are not the same.**
20   Q I agree. What are the differences?
21   **A Well, my definition, I said an image server**
22 **is a type of server that stores and delivers images.**

30
1   **CONFIDENTIAL * ATTORNEYS EYES ONLY**
2   **And this document says image server -- an image server**
3   **is a type of server that is specialized in delivering**
4   **images.**
5   Q So which one am I supposed to consider here
6   when I'm trying to figure out what to do in this case?
7   MR. RABENA: Object to the form.
8   THE WITNESS: Well, I don't have any idea
9   what you're supposed to do. That sounds like a legal
10 question.
11 BY MR. PASTERNAK:
12   Q Frankly, neither do I because there's two
13 different definitions here.
14   **A Well, this is what I wrote and I'm sticking**
15 **by it. So you can listen to me or -- I don't know**
16 **what the status of what the counsel did. If I was to**
17 **talk to the court, I would say use my definition.**
18   Q All right. So that means, then, doesn't
19 it, that the definition in the brief is not correct?
20   MR. RABENA: Object to the form.
21   THE WITNESS: It's not the same as mine, but
22 that doesn't necessarily mean it's incorrect.

31
1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   BY MR. PASTERNAK:
3   Q All right. Well, so -- well, let's step
4   back. You would tell the judge that the proper
5   construction of image server is the one in your
6   declaration, right?
7   **A Yes.**
8   Q Isn't it a logical conclusion that the one
9   in the brief is not the proper construction?
10   **A I haven't analyzed to what extent it would**
11 **be different in any substantial way.**
12   Q Why don't you do that now. I'd like to
13 know -- I'd like to know for the record which
14 definition you think is the proper definition of image
15 server. And I'll give you the time, if you need it,
16 to compare the two.
17   **A Well, I don't need time for that question**
18 **because I think mine is the proper definition.**
19   Q Okay. So then will you concede that the
20 one in the brief is not the proper definition?
21   **A Well, I think the only substantial**
22 **difference is that the one in the brief uses the word**

32
1   **CONFIDENTIAL * ATTORNEYS EYES ONLY**
2   **"specialized" in delivering images. There is probably**
3   **no dispute that, in order to deliver images, it has to**
4   **store it. So I'd be surprised if you guys have a**
5   **problem with whether the image server stores images or**
6   **not, but -- I don't know if there is --**
7   Q Let me ask it this way.
8   **A Okay.**
9   Q I'm giving you the chance now to change
10 your mind if you want to on what the proper
11 construction of image server is going forward into the
12 case. If you're not going to, that's great and I'll
13 move on past this point.
14   **A No. I'm happy with my definition.**
15   Q All right. Good. So an image server
16 doesn't have to be specialized in delivering images,
17 correct, by your definition?
18   **A By my definition, no.**
19   Q What does the word "separate" mean in your
20 definition?
21   **A Not the same.**
22   Q What does "not the same" mean?

CONFIDENTIAL VIDEOTAPED DEPOSITION OF BRAD ALLAN MYERS, PH.D. - VOLUME 1
CONDUCTED ON FRIDAY, APRIL 18, 2008

9 (Pages 33 to 36)

33

1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   A I'm not sure what you don't understand.
3   Q Does it mean mechanically separate, two
4   different boxes?
5   A The definition or the -- I think it's
6   important that the image server and the web server
7   must be distinguishable in the sense that you can be
8   able to tell one from the other. And certainly, if
9   they are separate hardware, then that's true.
10   Q But do they have to be separate hardware?
11   A Not necessarily.
12   Q Describe a scenario where they aren't
13   separate hardware or a mechanical construction or
14   electrical construction where they are not separate
15   hardware.
16   A Well, you could have, you know -- most
17   servers now are actually a big collection of machines,
18   you know. Amazon, you know, has a great many machines
19   that are the server for Amazon.com, and --
20   Q Can I stop you there? How do you know
21   that?
22   A Everybody knows that.

34

1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   Q I don't know that.
3   A Well, you could, if you asked.
4   MR. RABENA: Everybody except one.
5   BY MR. PASTERNAK:
6   Q Well, that's what I'm asking. How do you
7   know how Amazon servers are structured?
8   A Oh, it's general knowledge that all web
9   servers are structured as large collections of
10   machines.
11   Q How are these -- how do these machines
12   connect to each other?
13   A Oh, I don't have detailed knowledge of
14   that.
15   Q Well, is there a wire running from one to
16   the next? How do you get all these machines grouped
17   together so that they work?
18   A Well, there are lots of different ways to
19   interconnect them. I don't know specifically.
20   Q How does Amazon do it?
21   A I don't know that.
22   Q All right. What else do you know about

35

1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   Amazon's servers?
3   A Well, I certainly -- I guess I don't know
4   much more than that there is lots of them specifically
5   about Amazon's.
6   Q And that's from reading the paper?
7   A Yeah, general knowledge.
8   Q All right. I got you off topic, and I
9   apologize. The question was describe a scenario where
10   the web server and the image server aren't separate.
11   A Well, they are separate.
12   Q All right. Let me go back and get to where
13   I was. Here's the question. Describe a scenario
14   where there isn't separate hardware for the web server
15   and the image server.
16   A Okay. So I was saying, if there is a big
17   collection of machines, then there might be software
18   that decides which one is going to be the image server
19   and which one's going to be the web server dynamically
20   based on load or something like that. And then the
21   software that provides the image server -- service
22   that provides, you know, that performs the image

36

1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   server function could be running on certain hardware
3   and later could be running on different hardware. So
4   it might move around, but it would still be separate
5   from the function that -- or the service that provides
6   the web service.
7   Q And this hardware you're referring to is,
8   all of it within the same box.
9   A Well, it's -- I guess it's possible because
10   you can put lots of different kinds of things together
11   in the same box.
12   Q How about the scenario where you have a
13   multiprocessor, one-chip multiprocessor chip, right?
14   Are you with me?
15   A Yes.
16   Q And that same multiprocessor is running a
17   web server and is running an image server. Is that
18   separate? Are the web server and the image server
19   separate if that were the case?
20   A I think if you can distinguish, if
21   somebody, you know, an engineer or user, looking at
22   the system can distinguish one from the other, then

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CONDUCTED ON FRIDAY, APRIL 18, 2008

10 (Pages 37 to 40)

37

CONFIDENTIAL * ATTORNEYS EYES ONLY

1   **CONFIDENTIAL * ATTORNEYS EYES ONLY**
2   **they are separate. So I think, you know, if they are**
3   **running in a way that they are separate, that's**
4   **sufficient.**
5   Q   What are the -- what are the parameters or
6   metrics that one uses to distinguish whether they are
7   separate for purposes of this definition? As a
8   potential infringer, how do I know what's separate and
9   what isn't?
10   **A   Well, they serve different functions.**
11   Q   So it's purely functionality.
12   **A   I think the patent is clear that it's using**
13   **the same kind of software. It's using Apache,**
14   **whatever version it was, to serve both functions, and**
15   **it's clear that they intended it for the two separate**
16   **functions. So, clearly, the distinguishing feature is**
17   **what function it's serving.**
18   Q   And it doesn't matter if the hardware
19   that -- if the software is running is in the same
20   metal box? They still -- they still can be separate?
21   **A   Today you can get more and more stuff into**
22   **the same box, so, you know, you could put, you know, a**

38

1   **CONFIDENTIAL * ATTORNEYS EYES ONLY**
2   **microwave in a regular oven in the same box, but that**
3   **doesn't mean that they have the same function. So I**
4   **don't think the physical box is an appropriate metric.**
5   Q   All right. So that's what I'm trying to
6   get at. And I think what you're telling me is the
7   appropriate metric is if one can distinguish separate
8   functions between the two servers.
9   **A   Yes.**
10   Q   And how does -- who is the one that ought
11   to be able to distinguish in your view?
12   **A   One of ordinary skill in the art.**
13   Q   And you've defined that in your
14   declaration, right?
15   **A   Yes.**
16   Q   Whose definition is that?
17   **A   You mean who wrote this, the definition?**
18   Q   I'll start with that.
19   **A   Yeah. I did.**
20   Q   Did you talk to your counsel about the
21   definition?
22   **A   Well, we discussed it, sure.**

39

1   **CONFIDENTIAL * ATTORNEYS EYES ONLY**
2   Q   And was there differences in opinion?
3   **A   Not that I recall.**
4   Q   So somehow magically you both came up with
5   the same definition?
6   **A   We came up with it when we were meeting.**
7   Q   Right. And were there other possible --
8   possible definitions of one of ordinary skill that
9   were bandied about?
10   **A   I don't recall.**
11   Q   You don't recall any other possible
12   definitions that were discussed?
13   **A   Correct.**
14   Q   Just this one.
15   **A   Well, I mean, we had a discussion for a**
16   **period of time about it, and this is the one we came**
17   **up with.**
18   Q   I understand and I'm trying --
19   **A   And I don't remember the details of the**
20   **conversation.**
21   Q   Do you remember any other tweaks on the
22   definition that you finally went with that were

40

1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   discussed?
3   **A   No.**
4   Q   Can an image server have anything besides
5   thumbnail images on it and still be an image server?
6   **A   Sure.**
7   Q   Does the patent say that?
8   **A   I don't recall.**
9   Q   Why don't you take some time and look.
10   **A   I think the only place that specifically**
11   **references the image server is column 6, line 28,**
12   **where it says that download via the image server 210**
13   **from the image database 212, images of web pages which**
14   **are referenced in hyperlinks.**
15   **So from my quick scan it seems like it only**
16   **mentions using it for the thumbnails.**
17   Q   So are you changing your answer? I asked
18   you whether or not an image server could have things
19   besides thumbnails, other data stored. Would it still
20   be an image server if it had things besides thumbnail
21   images?
22   **A   Well, by my definition it can have a**

CONFIDENTIAL VIDEOTAPED DEPOSITION OF BRAD ALLAN MYERS, PH.D. - VOLUME 1
CONDUCTED ON FRIDAY, APRIL 18, 2008

11 (Pages 41 to 44)

41

1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   variety of kinds of images, and I think, to the extent
3   that you have a server which provides thumbnail images
4   as well as, say, full-size images, that would still be
5   an image server under my definition.
6   Q   What if it provides something other than
7   images?
8   A   Well, I've -- I've defined it in a way that
9   allows it to provide other kinds of data.
10   Q   How so?
11   A   Well, it's the type of server that stores
12 and delivers images. That doesn't preclude it from
13 delivering other kinds of content.
14   Q   And what is the basis for that definition,
15 the nonprecluded definition in the patent? Is there
16 any basis for that?
17   A   Well, the patent doesn't talk about the
18 image server providing anything else besides the
19 images of web pages. So I don't have any evidence off
20 the top of my head of how it can provide other
21 functions.
22   Q   I want to go back to a line you referred me

42

1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   to. And let me see if I can find it. Yeah, column 6,
3   line -- let's look at column 6, about line 24 through
4   line 32.
5   Do you see the paragraph starting with "the
6   visualization functionality"?
7   A   Yes.
8   Q   Okay. In that paragraph there is a
9   discussion of an image database 212. Do you see that?
10   A   Yes.
11   Q   What is that?
12   A   That's a collection of all the images that
13 the image server provides.
14   Q   Is the image database part of the image
15 server?
16   A   Well, I think you can see clearly in FIG. 1
17 and FIG. 2 that the image server box is separate from
18 the image database box.
19   Q   So the image database is not part of the
20 image server.
21   A   So, I'm looking also at column 6 around
22 line 9. Wait. That's the wrong place.

43

1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   Here, column 5, around line 34. The image
3   server interfaces with an image database, which is
4   preferably a Dell Edge 24 running MySQL. So it sounds
5   like it's saying the image database is a separate
6   machine, a separate Dell computer, which was running
7   different software than the image server, which it
8   defines just above as running Apache.
9   Q   So is that -- is that congruent with your
10 definition of image server? I just want to be clear.
11 Image database is not part of the image server,
12 correct?
13   A   Well, that -- that seems to be a reasonable
14 conclusion from that.
15   Q   All right. Is that your definition?
16   A   Well, yeah, I defined an image server as a
17 type of server that stores and delivers images. And
18 you found the patent seeming to say that the image
19 server is separate from the image server -- the image
20 storer.
21   Q   So do you want to change your definition?
22 I think we now have three potential claim

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1   CONFIDENTIAL * ATTORNEYS EYES ONLY
2   constructions.
3   A   Well, luckily, the judge gets to decide and
4   I don't actually have to decide what the final
5   definition is.
6   Q   I agree, but you do get to take a position
7   on it. So I'm giving you the chance now to delete, I
8   guess, to delete "that stores and" from your proposed
9   claim construction, if you want to.
10   A   Well, I guess in the context of this
11 patent, now that you point out all these specific
12 issues, I'd be comfortable with the definition, the
13 revised definition that you're --
14   Q   Okay.
15   A   -- now proposing.
16   Q   Let's make sure we have it right. My
17 understanding that your proposed claim construction of
18 image server now is a type of server that delivers
19 images; is that right?
20   A   Okay.
21   Q   Good. Now what I'd like you to do, doctor,
22 is go to Claim 1 of the '904 patent and describe to me

Exhibit B

2128   MANUAL OF PATENT EXAMINING PROCEDURE

increased. Items provided in easily reproducible form have thus become "printed publications" as the phrase is used in 35 U.S.C. 102. *In re Wyer*, 655 F.2d 221, 226, 210 USPQ 790, 794 (CCPA 1981) (Laid open Australian patent application held to be a "printed publication" even though only the abstract was published because it was laid open for public inspection, microfilmed, "diazo copies" were distributed to five suboffices having suitable reproduction equipment and the diazo copies were available for sale.). The contents of a foreign patent application should not be relied upon as prior art until the date of publication (i.e., the insertion into the laid open application) can be confirmed by an examiner's review of a copy of the document. See MPEP § 901.05.

IV.   PENDING U.S. APPLICATIONS

As specified in 37 CFR 1.14(a), all pending U.S. applications are preserved in confidence except for published applications, reissue applications, and applications in which a request to open the complete application to inspection by the public has been granted by the Office (37 CFR 1.11(b)). However, if an application that has not been published has an assignee or inventor in common with the application being examined, a rejection will be proper in some circumstances. For instance, when the claims between the two applications are not independent or distinct, a provisional double patenting rejection is made. See MPEP § 804. If the copending applications differ by at least one inventor and at least one of the applications would have been obvious in view of the other, a provisional rejection over 35 U.S.C. 102(e) or 103 is made when appropriate. See MPEP § 706.02(f)(2), § 706.02(k), § 706.02(l)(1), and § 706.02(l)(3).

See MPEP § 706.02(a), § 804 and § 2136 *et seq.* for information pertaining to rejections relying on U.S. application publications.

2128   "Printed Publications" as Prior Art [R-5]

A REFERENCE IS A "PRINTED PUBLICATION" IF IT IS ACCESSIBLE TO THE PUBLIC

A reference is proven to be a "printed publication" "upon a satisfactory showing that such document has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it." *In re Wyer*, 655 F.2d 221, 210 USPQ 790 (CCPA 1981) (quoting *I.C.E. Corp. v. Armco Steel Corp.*, 250 F. Supp. 738, 743, 148 USPQ 537, 540 (SDNY 1966)) ("We agree that 'printed publication' should be approached as a unitary concept. The traditional dichotomy between 'printed' and 'publication' is no longer valid. Given the state of technology in document duplication, data storage, and data retrieval systems, the 'probability of dissemination' of an item very often has little to do with whether or not it is 'printed' in the sense of that word when it was introduced into the patent statutes in 1836. In any event, interpretation of the words 'printed' and 'publication' to mean 'probability of dissemination' and 'public accessibility' respectively, now seems to render their use in the phrase 'printed publication' somewhat redundant.") *In re Wyer*, 655 F.2d at 226, 210 USPQ at 794.

See also *Carella v. Starlight Archery,* 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986) (Starlight Archery argued that Carella's patent claims to an archery sight were anticipated under 35 U.S.C. 102(a) by an advertisement in a Wisconsin Bow Hunter Association (WBHA) magazine and a WBHA mailer prepared prior to Carella's filing date. However, there was no evidence as to when the mailer was received by any of the addressees. Plus, the magazine had not been mailed until 10 days after Carella's filing date. The court held that since there was no proof that either the advertisement or mailer was accessible to any member of the public before the filing date there could be no rejection under 35 U.S.C. 102(a).).

ELECTRONIC PUBLICATIONS AS PRIOR ART

Status as a "Printed Publication"

An electronic publication, including an on-line database or Internet publication, is considered to be a "printed publication" within the meaning of 35 U.S.C. 102(a) and (b) provided the publication was accessible to persons concerned with the art to which the document relates. See *In re Wyer*, 655 F.2d 221, 227, 210 USPQ 790, 795 (CCPA 1981) ("Accordingly, whether information is printed, handwritten, or on microfilm or a magnetic disc or tape, etc., the one who wishes to characterize the information, in whatever form it may be, as a 'printed publication' * * * should

produce sufficient proof of its dissemination or that it has otherwise been available and accessible to persons concerned with the art to which the document relates and thus most likely to avail themselves of its contents.'" (citations omitted).). See also *Amazon.com v. Barnesandnoble.com*, 73 F. Supp. 2d 1228, 53 USPQ2d 1115, 1119 (W.D. Wash. 1999) (Pages from a website were relied on by defendants as an anticipatory reference (to no avail), however status of the reference as prior art was not challenged.); *In re Epstein*, 32 F.3d 1559, 31 USPQ2d 1817 (Fed. Cir. 1994) (Database printouts of abstracts which were not themselves prior art publications were properly relied as providing evidence that the software products referenced therein were "first installed" or "released" more than one year prior to applicant's filing date.).

The Office policy requiring recordation of the field of search and search results (see MPEP § 719.05) weighs in favor of finding that Internet and on-line database references cited by the examiner are "accessible to persons concerned with the art to which the document relates and thus most likely to avail themselves of its contents." *Wyer*, 655 F.2d at 221, 210 USPQ at 790. Office copies of an electronic document must be retained if the same document may not be available for retrieval in the future. This is especially important for sources such as the Internet and online databases.

Date of Availability

Prior art disclosures on the Internet or on an on-line database are considered to be publicly available as of the date the item was publicly posted. *>Absent evidence of the date that the disclosure was publicly posted, if< the publication >itself< does not include a publication date (or retrieval date), it cannot be relied upon as prior art under 35 U.S.C. 102(a) or (b)*>. However<, it may be relied upon to provide evidence regarding the state of the art. Examiners may ask the Scientific and Technical Information Center to find the earliest date of publication >or posting<. See MPEP § 901.06(a), paragraph IV. G.

Extent of Teachings Relied Upon

An electronic publication, like any publication, may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art. See MPEP § 2121.01 and § 2123. Note, however, that

if an electronic document which is the abstract of a patent or printed publication is relied upon in a rejection under 35 U.S.C. 102 or 103, only the text of the abstract (and not the underlying document) may be relied upon to support the rejection. In situations where the electronic version and the published paper version of the same or a corresponding patent or printed publication differ appreciably, each may need to be cited and relied upon as independent references based on what they disclose.

Internet Usage Policy

See MPEP § 904.02(c) for the portions of the Internet Usage Policy pertaining to Internet searching and documenting search strategies. See MPEP § 707.05 for the proper citation of electronic documents.

EXAMINER NEED NOT PROVE ANYONE ACTUALLY LOOKED AT THE DOCUMENT

One need not prove someone actually looked at a publication when that publication is accessible to the public through a library or patent office. See *In re Wyer*, 655 F.2d 221, 210 USPQ 790 (CCPA 1981); *In re Hall*, 781 F.2d 897, 228 USPQ 453 (Fed. Cir. 1986).

2128.01 Level of Public Accessibility Required [R-3]

I. A THESIS PLACED IN A UNIVERSITY LIBRARY MAY BE PRIOR ART IF SUFFICIENTLY ACCESSIBLE TO THE PUBLIC

A doctoral thesis indexed and shelved in a library is sufficiently accessible to the public to constitute prior art as a "printed publication." *In re Hall*, 781 F.2d 897, 228 USPQ 453 (Fed. Cir. 1986). Even if access to the library is restricted, a reference will constitute a "printed publication" as long as a presumption is raised that the portion of the public concerned with the art would know of the invention. *In re Bayer*, 568 F.2d 1357, 196 USPQ 670 (CCPA 1978).

In *In re Hall*, general library cataloging and shelving practices showed that a doctoral thesis deposited in university library would have been indexed, cataloged and shelved and thus available to the public before the critical date. Compare *In re Cronyn*, 890 F.2d 1158, 13 USPQ2d 1070 (Fed. Cir. 1989) wherein doctoral theses were shelved and indexed by

Exhibit C

US007124165B1

(12) **United States Patent**
Barraclough et al.

(10) **Patent No.:   US 7,124,165 B1**
(45) **Date of Patent: *Oct. 17, 2006**

(54) **ARRANGEMENT AND METHOD FOR DISPLAYING AND SHARING IMAGES**

(75) Inventors: **Keith Barraclough**, Menlo Park, CA (US); **Michael Noonen**, San Jose, CA (US)

(73) Assignee: **8x8, Inc.**, Santa Clara, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 774 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **09/923,084**

(22) Filed: **Aug. 6, 2001**

Related U.S. Application Data

(63) Continuation of application No. 09/181,140, filed on Oct. 27, 1998, now Pat. No. 6,301,607.

(60) Provisional application No. 60/075,858, filed on Feb. 25, 1998, provisional application No. 60/073,874, filed on Feb. 6, 1998.

(51) **Int. Cl.**
  G06F 15/16   (2006.01)
  H04N 5/225   (2006.01)
(52) **U.S. Cl.** **709/204**; 709/217; 348/207.1
(58) **Field of Classification Search** 709/204, 709/205, 227, 228, 203, 206, 232, 249; 345/841, 345/733; 358/487; 379/93.17; 715/501.1
  See application file for complete search history.

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(Continued)

Primary Examiner—Patrice Winder
(74) *Attorney, Agent, or Firm*—Robert J. Crawford; Crawford Maunu PLLC

(57)   **ABSTRACT**

According to an aspect of the disclosure, the present invention provides methods and arrangements for using the internet and an internet access appliance to share images, wherein the images are captured, downloaded, and sent to a server. At the server, the images are parsed and posted to a web page. Subsequent communication is automatically sent to individuals selected by the sender to notify them of the posting of new images. The present invention provides an effective and efficient manner in which to share images for business, marketing, and home use.

27 Claims, 1 Drawing Sheet
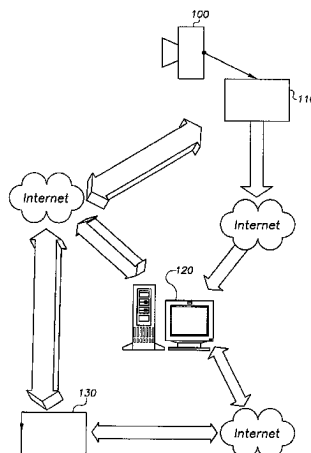
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Stefan Schmid, Web Representation of Dynamic Thumbnails, dept of Distributed Systems, University of Ulm, Mar. 1998, 17 pages, [http://www.citeseer.com].*

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FIG.1
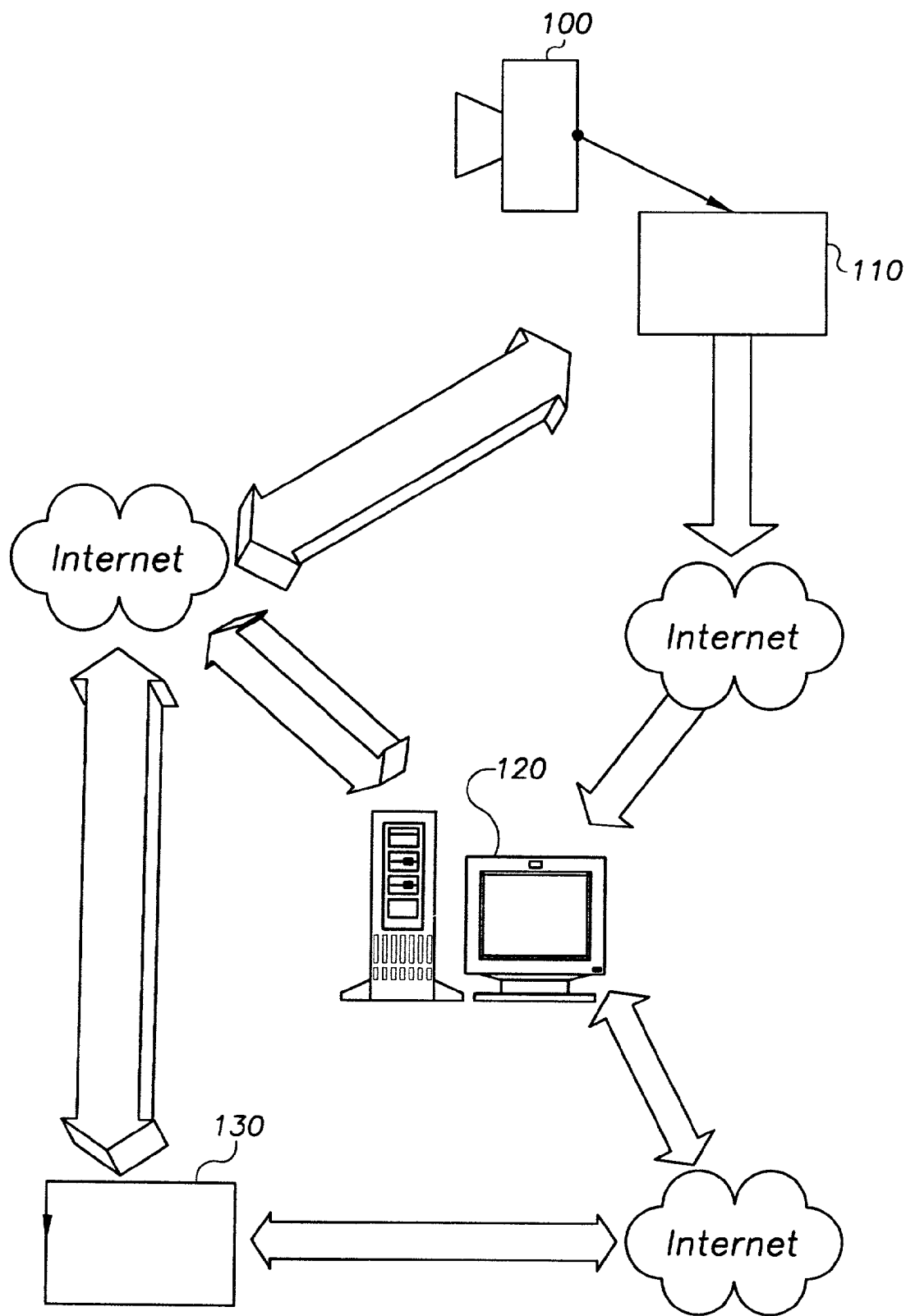
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ARRANGEMENT AND METHOD FOR DISPLAYING AND SHARING IMAGES

This is a continuation of U.S. patent application Ser. No. 09/181,140 filed on Oct. 27, 1998 and entitled "Arrangement and Method for Displaying and Sharing Images," now U.S. Pat. No. 6,301,607 B2 to which priority is claimed under 35 U.S.C. §120, and which claims priority to and incorporates by reference Provisional Application Ser. Nos. 60/073,874 (filed on Feb. 6, 1998) and 60/075,858 (filed on Feb. 25, 1998).

FIELD OF THE INVENTION

The present invention relates to image retrieval and image transfer using commercially available communication channels such as POTS (plain old telephone service) lines, and a server system such as the Internet.

BACKGROUND

Devices for video and image capturing have evolved into common and affordable household tools. Such devices include digital cameras and videophones. The advancing technology is continually making such devices cheaper, easier to use, and more versatile.

Another advancing technology, the internet, has evolved into a common household tool used for fast and efficient communication of endless types of information. The methods of communication have been evolving rapidly and are growing in number. The communication of such information includes the display of fixed and video images. These images have been used both privately and commercially for purposes such as image sharing. Applications include the posting of images to a web page or BBS, and direct electronic delivery of the images to selected recipients.

Notwithstanding the existence of the foregoing advancements, endeavors such as photo developing businesses and real estate businesses have not yet realized the advantages, including the use of rapid image transfer, associated with these advancing technologies. Photo developing businesses continue to use archaic communication methods to submit photos to be processed, such as hand delivery or conventional mail. In addition, the sharing of images for selection for photo processing, such as between family members and friends, continues to be carried out through outdated methods, such as by the physical sharing or mailing of such images.

Real estate businesses also continue to use archaic communication methods. Physical presence at a real estate site and hand delivery of real estate pictures or videos to potential purchasers are common. Such photos or videos are not interactive, meaning the potential purchasers must search elsewhere, contact the realtor via other means, or travel to the real estate site in order to obtain further information. In addition, realtors continue to use manual communication to reach potential purchasers, such as by conventional newspaper advertisements, phone calls, or physical visits.

SUMMARY

The present invention is directed to a method of sharing and displaying images using an internet access appliance with internet telephony and image capture capability for commercial and non-commercial use.

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According to an example embodiment, digital images are captured, downloaded to an internet access appliance with internet telephony and image capture capability, or downloaded directly to network storage through the network appliance (that may be transmitted with or without compression), attached to an electronic communication, and sent to a server where the images are parsed and posted onto a web page where they are stored, and subsequent communication is automatically sent to selected individuals. The images may comprise stationary and video images. The selected individuals may comprise family members, friends, target customers, and business associates.

The above summary of the present invention is not intended to describe each illustrated embodiment or every implementation of the present invention. The figures and the detailed description which follow more particularly exemplify these embodiments.

BRIEF DESCRIPTION OF THE DRAWING

Other aspects and advantages of the present invention will become apparent upon reading the following detailed description and upon reference to the drawing in which:

FIG. 1 is a flow diagram representing a method of using the internet to display and share images, according to particular embodiments of the present invention;

While the invention is susceptible to various modifications in alternative forms, specific embodiments thereof have been shown by way of example in the drawing and will herein be described in detail. It should be understood, however, that it is not intended to limit the invention to a particular form disclosed. On the contrary, the invention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

DETAILED DESCRIPTION

In the following detailed description, reference is made to the accompanying drawing which forms a part hereof, and in which are shown by way of illustration specific embodiments in which the invention may be practiced. It is to be understood that other embodiments may be utilized and structural changes may be made without departing from the scope of the present invention.

According to an example embodiment, FIG. 1 shows a flow diagram of a system for displaying and sharing images using an internet access appliance with internet telephony and video capture capability. Images are captured with a digital camera or camcorder 100 and downloaded to an internet access appliance 110 with image capture capability. The images are attached to a first electronic communication and sent to a web server 120 via the internet. At the web server 120, the images are parsed and posted to a web page on the internet. The images may comprise stationary and video images.

A second electronic communication is automatically sent from the web server 120 to individuals, selected by the sender of the first electronic communication, via the internet, notifying the individuals of the new posting on the web page. The selected individuals may comprise family members, friends, target customers, and business associates. The individuals visit the web page via the internet to view the new images using an internet access appliance with image capture capability 130. The automatic delivery of the second electronic communication provides a highly efficient man-

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ner in which the sender of the first electronic communication can communicate with the selected individuals.

Information such as the sender's IP address, email address, web site address, or telephone number may be imbedded into, associated with or attached to the images posted on the web page. This information provides an easy way for the selected individuals to return a communication efficiently to the sender. Also, information such as descriptions, prices, and ordering details may accompany the images posted on the web page. This accompanying information may be used to describe the images, or list prices of goods for sale, or provide information such as availability, delivery costs, or other ordering information.

Selected individuals may visit the web page via the internet to view the new images using an internet access appliance **130**, as in FIG. **1**. An individual may click on a posted image with information that is imbedded, associated or attached, thereby initiating an internet phone call to the sender. The sender receives the call and a conference call is held while simultaneously accessing the images on the web page, using the internet access appliance **130**.

In addition, an individual may click on a posted image with information that is imbedded, associated or attached, thereby initiating an internet phone call to the sender. The sender receives the call and a conference call is held while simultaneously accessing the images on the web page, using the internet access appliance **130**, wherein the web page is interactive, such that the images can be altered or exchanged by one of the users, and wherein the alterations or exchanges are viewed by all users holding the conference call and simultaneously accessing the web page.

Furthermore, an individual may click on a posted image, thereby initiating an electronic communication to the sender, initiating access to another web page, or generating a facsimile.

The present invention greatly enhances communication abilities. For example, the use of this method in the operation of a real estate business broadens the abilities of realtors to communicate with customers, and provides a more cost effective way to do so. For instance, in an example embodiment of the present invention, a realtor can capture video images of real estate property, download them to an internet access appliance **110**, as in FIG. **1**, and send them to the server **120** where they are posted to a web site. Subsequent electronic communication is automatically sent to potential buyers of the real estate, as selected by the realtor, to inform them of the new posting. The potential buyers can then access the web site, using an internet access appliance **130**, and view the real estate video images. Information may be imbedded into the video images, allowing the potential buyers to click on the images and initiate communication with the realtor. The communication may be in the form of an internet phone call, wherein the realtor answers the call and discusses the real estate with the potential buyer.

Furthermore, the realtor and the potential buyer may simultaneously access the web site, wherein the realtor may alter the images in order to demonstrate certain aspects of the real estate, or the realtor may exchange the images on the site to show alternate images to the potential buyer. Additionally, the realtor may be present at the location of the real estate, and may use an internet access appliance with video capture and telephony capability **110** to capture further images of the real estate while holding an internet phone call with the potential buyer, and may download those video images and send them to the server **120**, where they are posted to the web site, and wherein the potential buyers can instantaneously view the newly posted images.

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The present invention provides real-time, or nearly real-time, viewing of the real estate by the potential buyer, and allows the realtor to respond to the potential buyer's requests for images. For instance, the potential buyer could direct the realtor to capture images of certain parts of the real estate, such as asking to see a master bedroom in a house.

According to another example application, in the operation of a photo developing business, digital images are downloaded to the internet access appliance **110** and sent to the server **120** where they are parsed and posted to a web page, and subsequent communication is automatically sent to selected individuals, wherein the images are digital photographs, and the selected individuals are friends and family of the sender, and wherein the web page contains photo development ordering information, and wherein the images are developed into physical photographs as directed by the sender and the sender's friends and family as indicated on the web page with photo development ordering information.

For use in the operation of a photo and video developing businesses, according to an example embodiment of the present invention, as in FIG. **1**, digital photographs and videos of an event, such as a religious gathering or a wedding, may be downloaded to the internet access appliance **110** and sent to the server **120** where they are parsed and posted to a web site, and wherein subsequent communication is automatically sent to individuals, such as relatives and friends of those present at the event. For instance, a wedding couple and their relatives and friends can then access the web site, view the wedding photograph and video images, and select those photos or videos that they wish to have developed and delivered to them by making selections while accessing the web site.

For further use in the operation of a photo and video developing businesses, according to another example embodiment of the present invention, as in FIG. **1**, digital photographs and videos of a family gathering, such as a birthday or reunion, or digital photographs and videos of family members, may be downloaded to the internet access appliance **110** and sent to the server **120**. A subsequent electronic communication may be sent to family members. The family members can then access the web site using the internet access appliance **130**, view the images, and select those photos or videos that they wish to have developed and delivered to them by making selections while accessing the web site. This example embodiment of the present invention would be particularly useful for friends and family members who do not live near each other, yet wish to stay close to their friends and family, such as for grandparents who want to see their grandchildren grow up.

According to another example application, in the operation of a digital photograph processing business, digital images are downloaded to the internet access appliance **110** and sent to the server **120** where they are parsed, modified, and posted to a web page, and subsequent communication is automatically sent to selected individuals, wherein the images are digital photographs, and the selected individuals are friends and family of the sender, wherein the web page contains digital photo ordering information, and wherein the images are modified as directed by the sender and the sender's friends and family as indicated on the web page digital photo ordering information.

According to a further example embodiment of the present invention, the internet access appliance includes the use of the VC55 Set Top manufactured by 8×8, Inc., 3151 Jay Street, Santa Clara, Calif.

Although specific embodiments have been illustrated and described herein, it is appreciated by those of ordinary skill

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in the art that any arrangement which is calculated to achieve the same purpose may be substituted for the specific embodiments shown. This application is intended to cover any adaptations or variations of the present invention. Therefore, it is manifestly intended that this invention be limited only by the claims and the equivalents thereof.

What is claimed is:

1. A method for displaying and sharing digital images using an internet access appliance with internet telephony and image capture capability, comprising the steps of:

capturing digital images of an item being viewed by a sender;

downloading the digital images to the internet access appliance or directly to network storage through the appliance;

including the digital images with a first email addressed to a server and sending the first email;

parsing the first email at the server and posting the images to a storage location where the images are stored;

selecting at least one set of individuals for whom targeted images are to be sent, each set including at least one individual;

sending a communication to the at least one selected set of individuals to notify of the posted images; and

while viewing the item, using the internet access appliance to establish a telephony connection with said at least one individual who converses with the sender and concurrently reviews the posted images.

2. A method, according to claim 1, wherein the images are accompanied by descriptions, and are included with the first email as attachments.

3. A method, according to claim 1, wherein the images are posted onto a web page with information imbedded into them, wherein the selected individuals visit the web page to view the images.

4. A method, according to claim 3, wherein clicking on the images initiates an internet phone call to the sender.

5. A method, according to claim 4, wherein an internet phone conference call is held between the sender and the selected individuals while simultaneously accessing web pages with images.

6. A method, according to claim 3, wherein clicking on the images initiates an email letter to the sender.

7. A method, according to claim 3, wherein clicking on the images initiates access to the sender's internet web page.

8. A method, according to claim 1, wherein the images that are of low to medium resolution can be downloaded for viewing across the internet.

9. A method, according to claim 1, wherein the images that are of high resolution are stored for making professionally-developed reprints.

10. A method, according to claim 1, wherein the sender also uses the internet access appliance for conversing with said at least one individual.

11. A method, according to claim 1, wherein the sets of selected individuals comprise potential purchasers of real estate and wherein the digital images comprise images of real estate property.

12. A method for displaying and sharing digital images using an internet access appliance with telephony and image capture capability, comprising the steps of:

posting at least one digital image via a server to a web page where the at least one image is made available for viewing, the at least one digital image being a digital image of an item captured by a sender;

selecting at least one individual for whom the at least one image is to be made accessible for viewing;

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notifying the at least one individual of the at least one image being posted to the web page; and

while viewing at least one image, using the internet access appliance to establish a telephony connection between said at least one individual and a second individual, where the at least one individual and the second individual concurrently review the at least one image at the web page.

13. The method of claim 12, further comprising:

prior to posting the at least one digital image via the server to a web page, downloading the at least one digital image to the internet access appliance; and

sending the at least one digital image to a server.

14. The method of claim 13, wherein downloading the at least one digital image to the internet access appliance includes downloading the at least one digital image directly to a network storage arrangement via the internet access appliance.

15. The method of claim 12, wherein the internet access appliance has internet telephony capability, wherein establishing a telephony connection between said at least one individual and a second individual includes establishing an internet telephony connection between the at least one individual and the second individual.

16. The method of claim 12, further comprising establishing access to the posted at least one digital image to a plurality of individuals, wherein any first one of the plurality of individuals is the selected at least one individual, and wherein any second one of the plurality of individuals is the second individual.

17. The method of claim 12, wherein the second individual is the sender.

18. The method of claim 12, further comprising:

capturing a digital image with the internet access appliance; and

wherein posting at least one digital image includes posting the captured image with the internet access appliance.

19. The method of claim 18, wherein capturing a digital image includes using a digital image capturing device of the internet access appliance to capture the digital image.

20. The method of claim 18, wherein capturing a digital image includes capturing digital video.

21. The method of claim 12, wherein posting at least one digital image via a server includes using the internet access appliance to send the digital image to the server.

22. An arrangement for displaying and sharing digital images using an internet access appliance with internet telephony and image capture capability, comprising:

a means for capturing digital images of an item being viewed by a sender;

a means for downloading the digital images to the internet access appliance or directly to network storage through the appliance;

a means for including the digital images with a first email addressed to a server and sending the first email;

a means for parsing the first email at the server and posting the images to a web page where the images are stored;

a means for selecting at least one set of individuals for whom targeted images are to be sent, each set including at least one individual;

a means for sending a communication to the at least one selected set of individuals to notify of the images posted to the web page; and

a means for, while viewing the item, using the internet access appliance to establish a telephony connection

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with said at least one individual who converses with the sender and concurrently reviews the posted images.

23. An arrangement for displaying and sharing digital images using an internet access appliance with internet telephony and image capture capability, the arrangement comprising:

means for capturing digital images of an item being viewed by a sender;

means for downloading the digital images to the internet access appliance or directly to network storage through the appliance;

means for including the digital images with a first email addressed to a server and sending the first email;

means for selecting at least one set of individuals for whom targeted images are to be sent, each set including at least one individual;

means for sending a communication to the at least one selected set of individuals to notify of the posted images; and

means for using, while viewing the item, the internet access appliance to establish a telephony connection with said at least one individual who converses with the sender and concurrently reviews the posted images.

24. A method for displaying and sharing digital images using a telephony appliance with telephony, image capture and internet access capabilities, the method comprising:

capturing at least one digital image with the telephony appliance;

posting the at least one captured digital image from the telephony appliance to a web page where the image is made available for viewing;

selecting at least one individual for whom the at least one image is to be made accessible for viewing;

notifying the at least one individual of the at least one image being posted to the web page; and

while viewing at least one image, using the telephony appliance to establish a telephony connection between an individual at the telephony appliance and another individual, wherein the individual at the telephony appliance and the other individual concurrently review the at least one image at the web page.

25. The method of claim 24, wherein using the telephony appliance to establish a telephony connection between an individual at the telephony appliance and another individual includes establishing a voice conversation between the individual at the telephony appliance the other individual.

26. The method of claim 24, wherein posting the at least one captured digital image from the telephony appliance includes posting the image while using the telephony appliance to engage in a telephony conversation.

27. The method of claim 24, wherein capturing at least one digital image includes capturing video.

*   *   *   *   *

Exhibit D

US007047502B2

(12) **United States Patent**   (10) **Patent No.:**   **US 7,047,502 B2**
Petropoulos et al.   (45) **Date of Patent:**   **May 16, 2006**

(54) **METHODS AND APPARATUS FOR MOUSE-OVER PREVIEW OF CONTEXTUALLY RELEVANT INFORMATION**

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(73) Assignee: **Ask Jeeves, Inc.**, Oakland, CA (US)

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(21) Appl. No.: **09/961,465**

(22) Filed: **Sep. 24, 2001**

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(51) **Int. Cl.**
G09G 5/00   (2006.01)

(52) **U.S. Cl.** **715/781**; 715/810; 715/760

(58) **Field of Classification Search** 345/781–807, 345/856–862; 715/781–783, 802–805
See application file for complete search history.

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(57)   **ABSTRACT**

Challenges to the analysis of search results may be mitigated by offering preview information when users navigate a computer-pointing device over pre-designated areas of a search result page. A separate icon in the pre-designated area enhances the advantages by providing intuitive preview ability with seamless and natural control over a variety of preview options, such as the type of preview information and the manner in which it is presented. In addition, while operating a preview-enabled search result page, users' behavior provides data and attributes, which may be re-incorporated into the searching algorithm to improve the relevancy of search results.

4 Claims, 7 Drawing Sheets
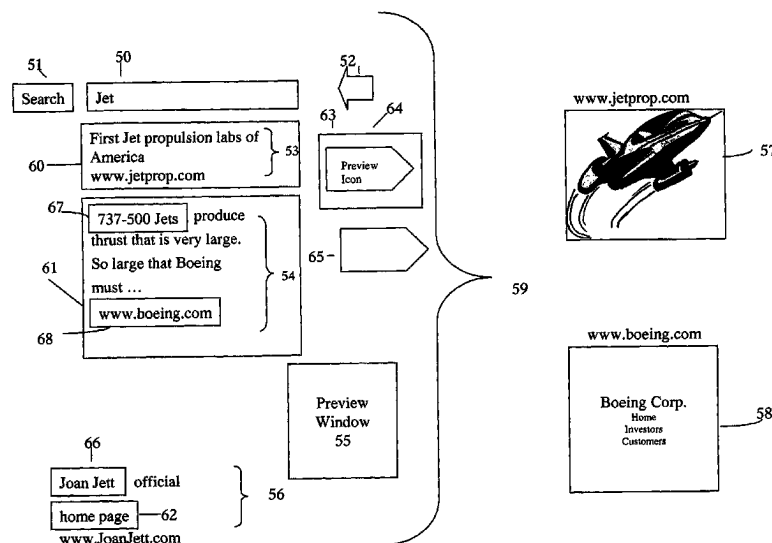
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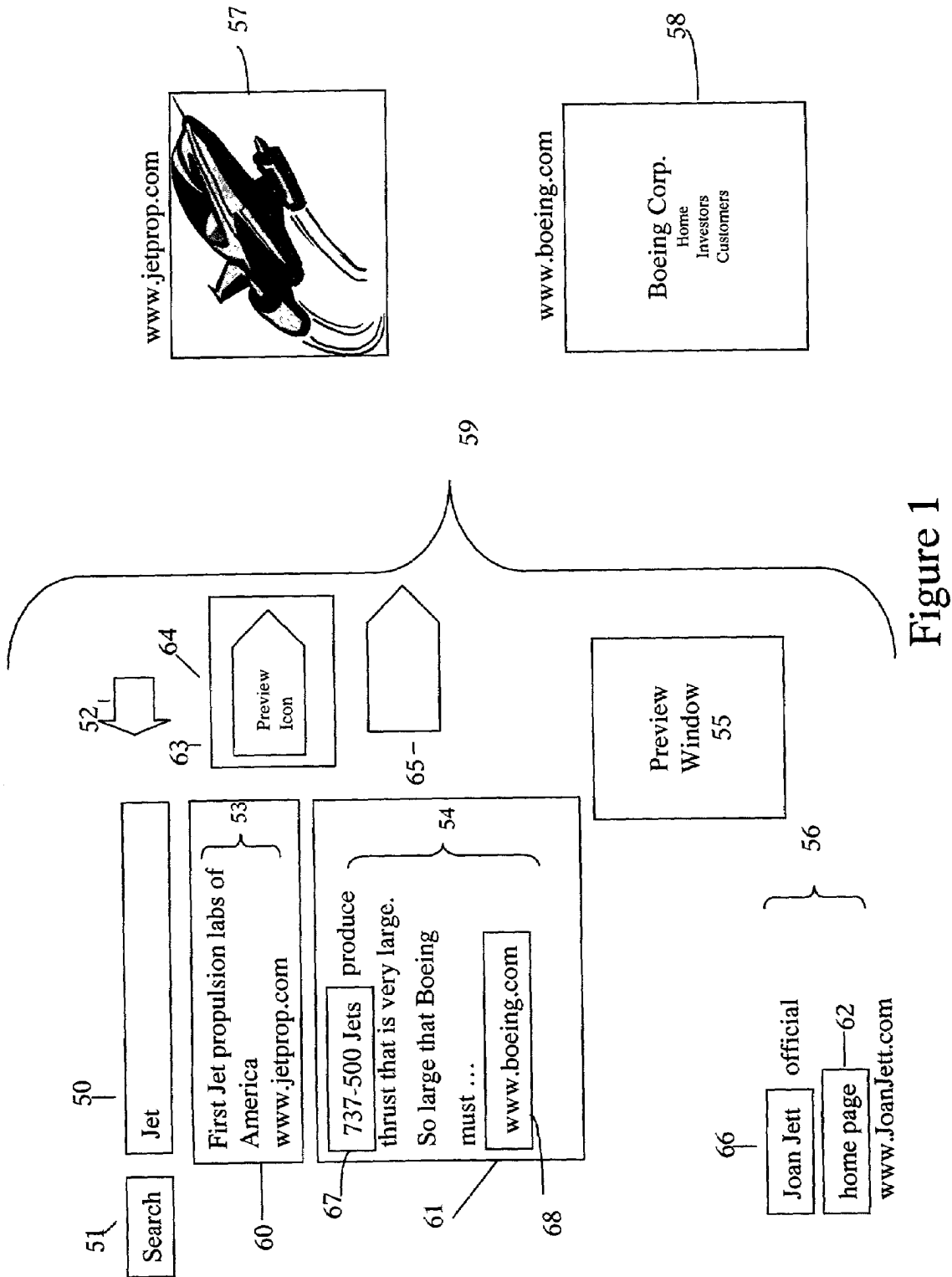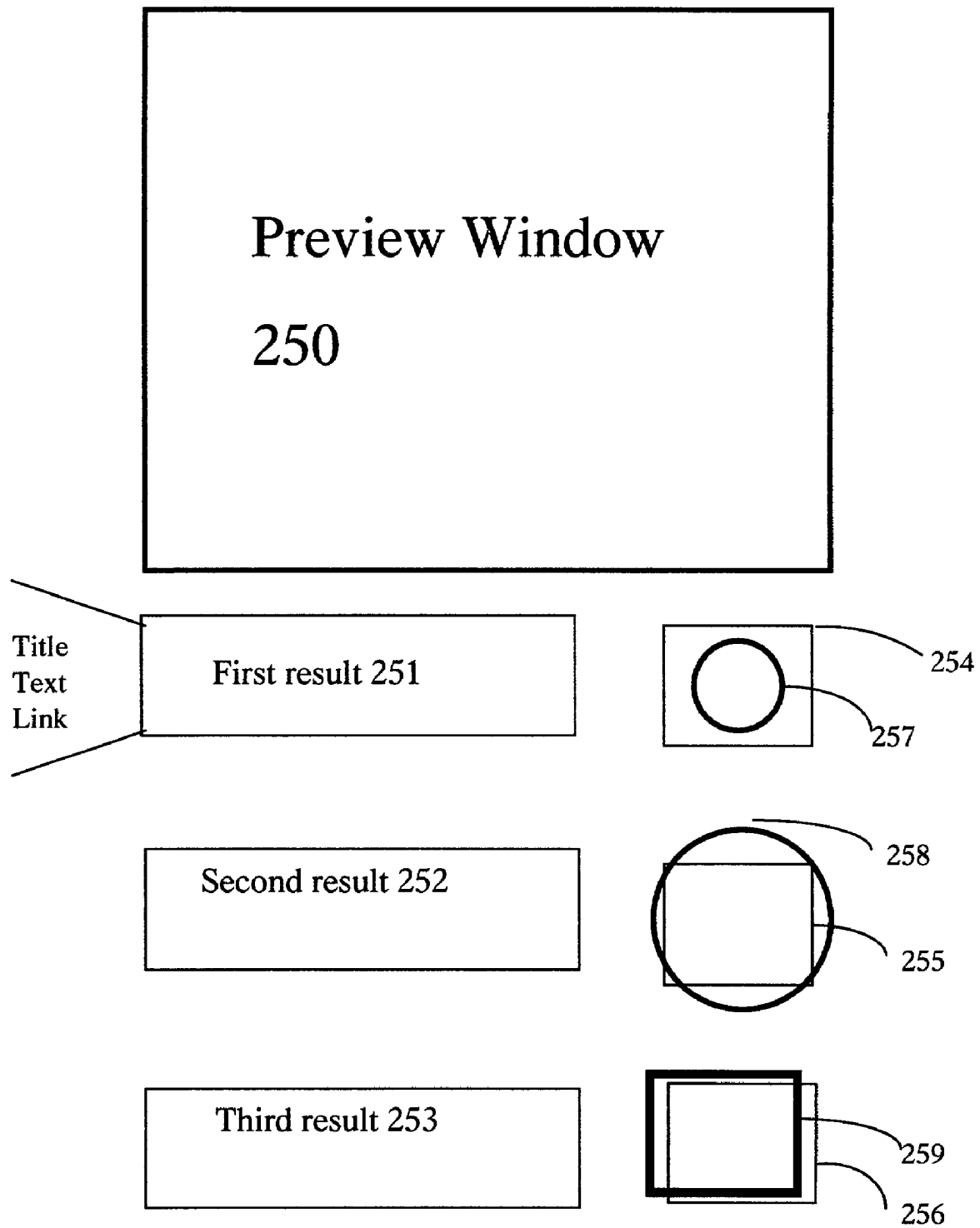
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Figure 1

Preview Window

250

Title
Text
Link

First result 251

254

257

Second result 252

258

255

Third result 253

259

256
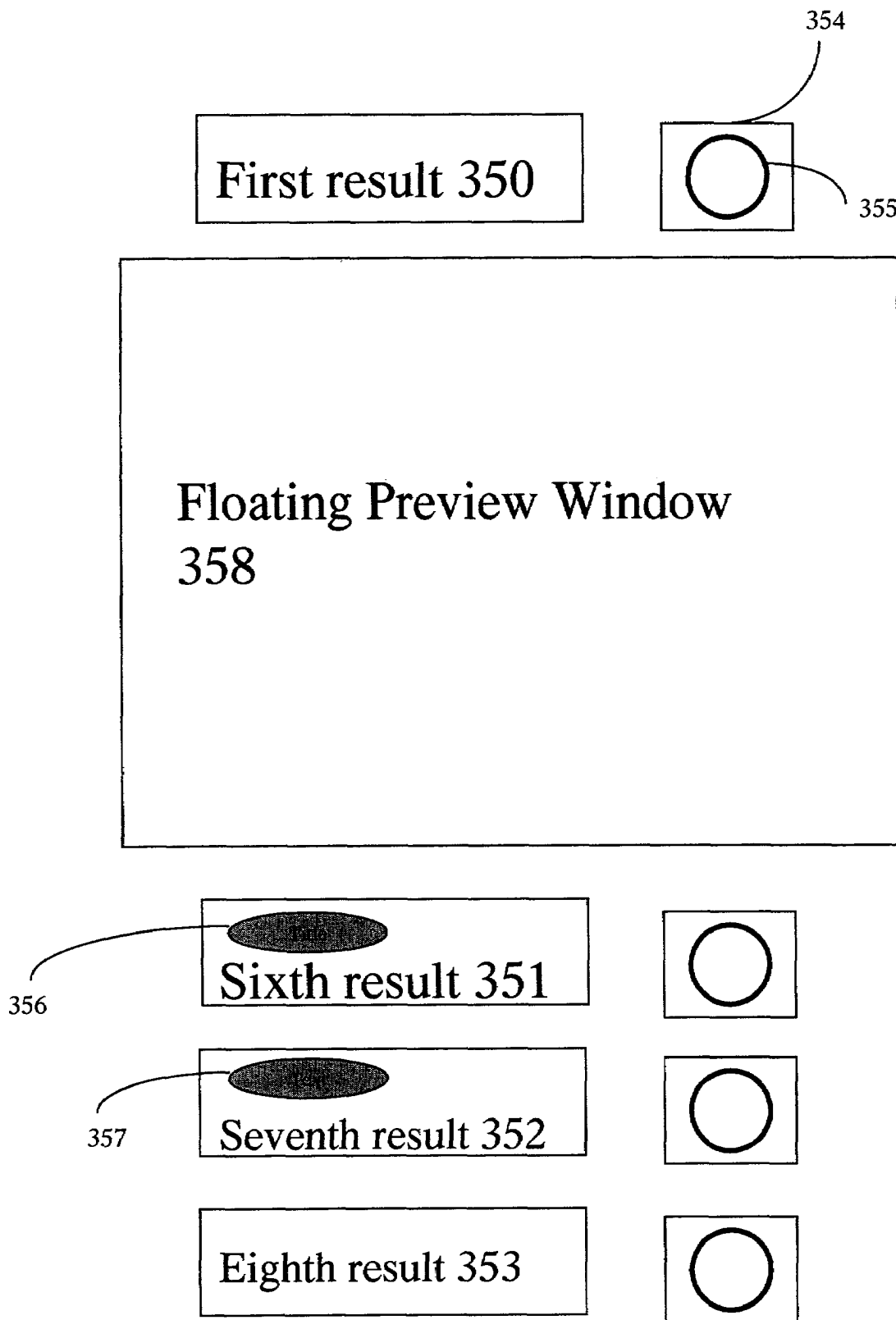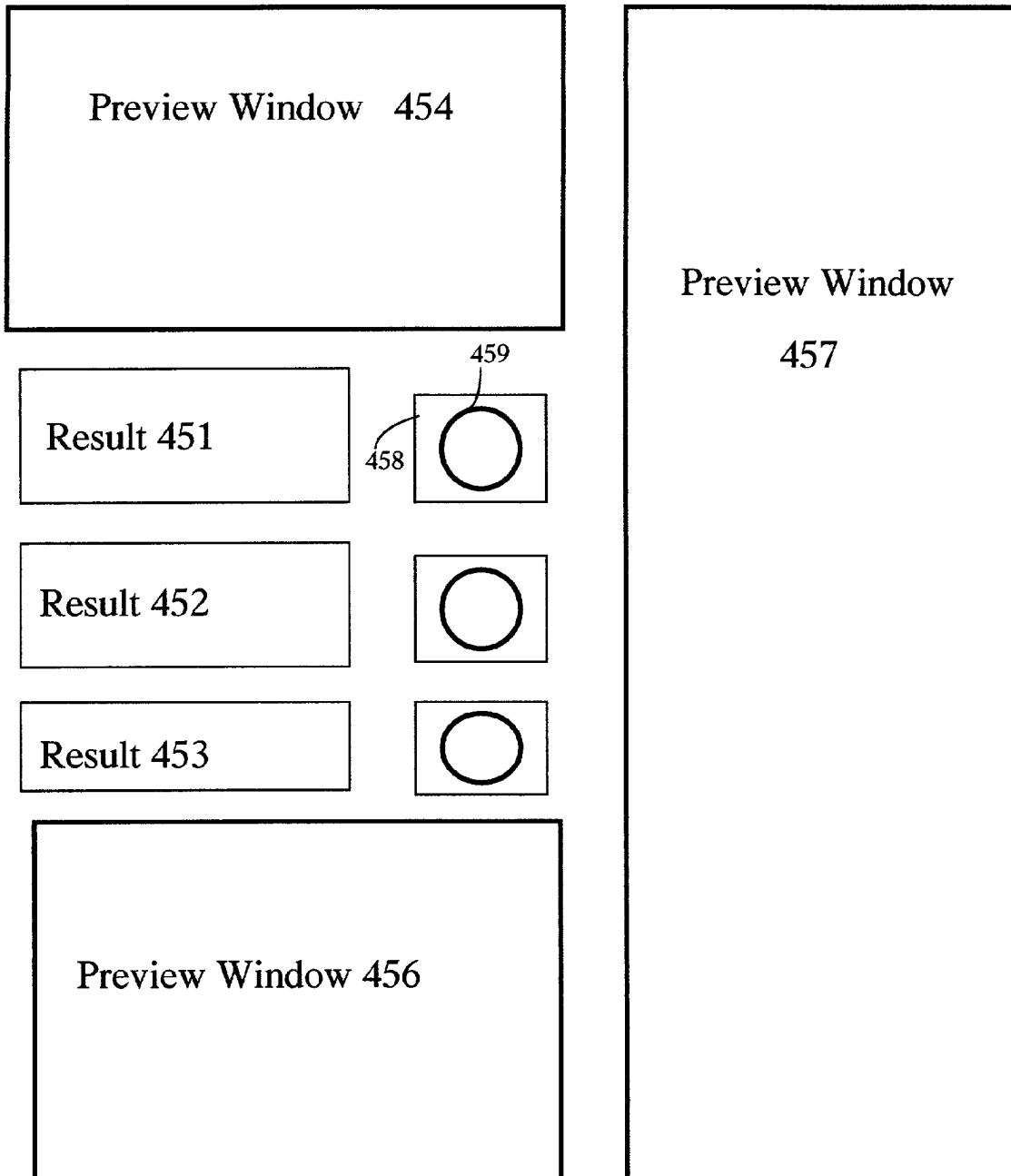
Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

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<table>
<tr><td>1</td><td>2</td></tr>
</table>

METHODS AND APPARATUS FOR MOUSE-OVER PREVIEW OF CONTEXTUALLY RELEVANT INFORMATION

This application is related to U.S. patent application Ser. No. 09/961,466 entitled "METHODS AND APPARATUS FOR MOUSE-OVER PREVIEW OF CONTEXTUALLY RELEVANT INFORMATION," by John Petropoulos, et al., filed on Sep. 24, 2001, which is hereby incorporated herein by reference.

BACKGROUND OF INVENTION

1. Field of the Invention

The invention relates to searching large amounts of information and analyzing the results of such a search. In one broad application of the invention, it relates to the area of web page searching either on the Internet or on Intranets. Furthermore, in the web context, the invention relates to improving the efficiency of analyzing search results and using the data gathered from efficient analysis to refine and improve the search process.

2. Description of the Related Art

Generally, the usefulness of any type of information is based upon a critical ability to find and adapt contextually relevant information in a timely manner. For example, if a cook is looking for a recipe, the existence of that recipe in an unidentified book of unknown whereabouts is not at all useful. Furthermore, even the book's identity and location would not be useful if it were not somehow readily accessible. Moreover, even if the cook were in possession of the correct book, without an index or table of contents, the process of finding and using the recipe would not be very efficient. Lastly, even an index and table of contents do not allow a cook to efficiently scan a large offering of recipes as compared to other techniques such as an index of pictures of the prepared foods.

From this illustration, one can easily see the importance of methods and systems, and the dimensions of information analysis that are required for efficient information location and retrieval. In fact, most everyone has learned how to use several simple systems such as those incorporated in libraries, dictionaries, maps and books. Few in our world, however, understand the methods and systems for finding information that is ultimately digitized or managed by machines such as computers. In the world of machine-managed information, there have been many propositions and techniques for solving these information location problems

Most commonly, the process of finding relevant information begins by reorganizing the entire universe of accessible information. For example, the phone company typically organizes phone numbers in the alphabetical order of the phone owners' na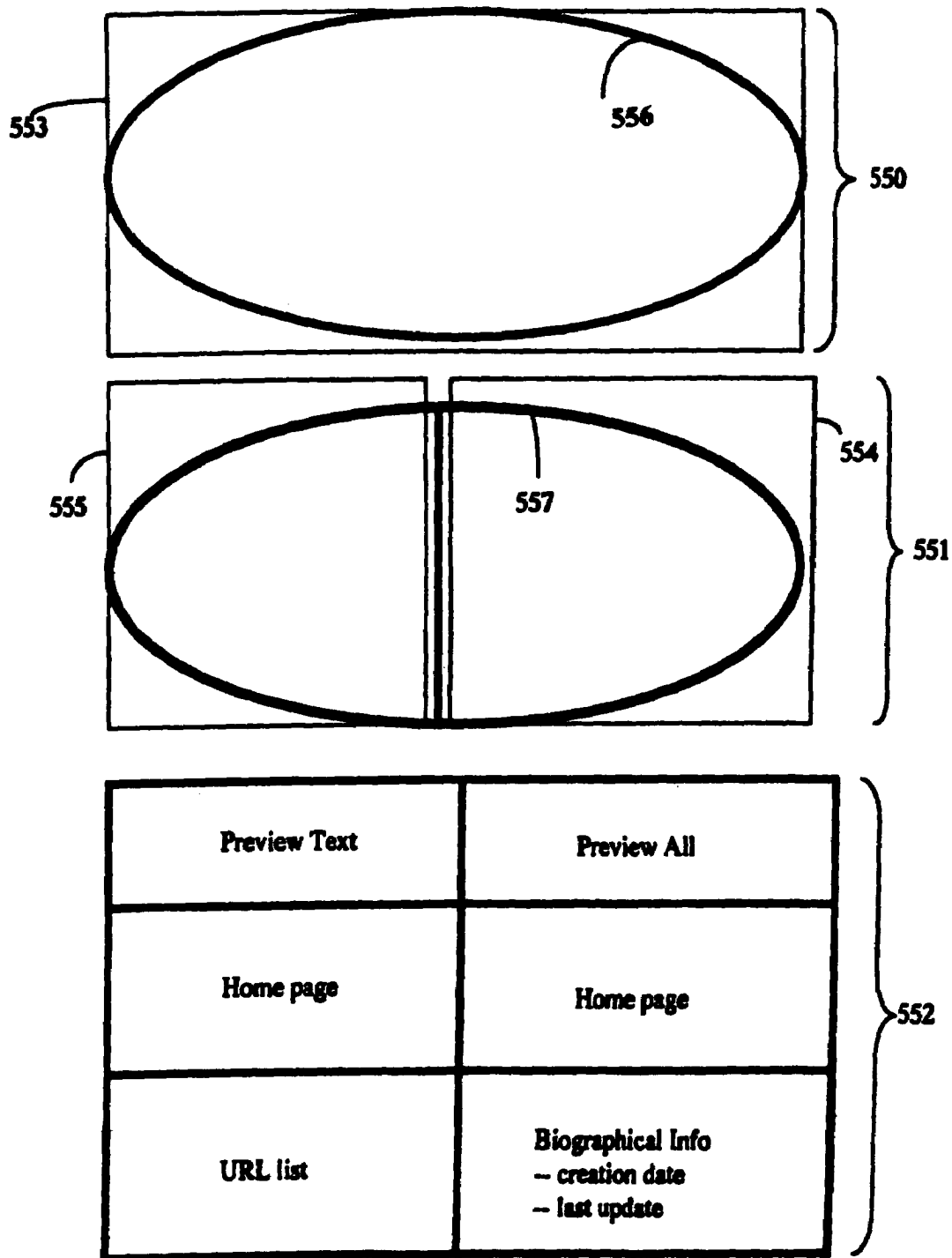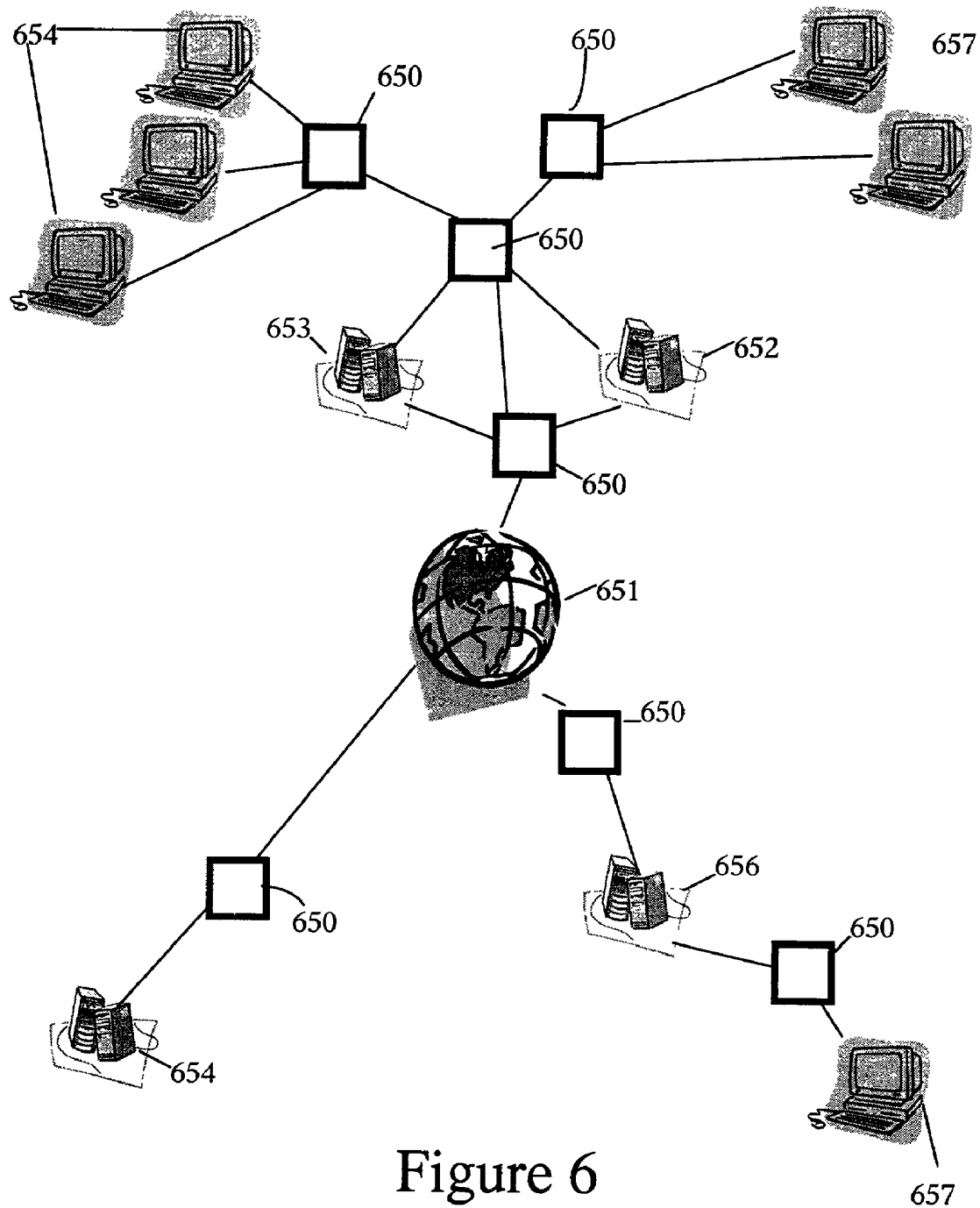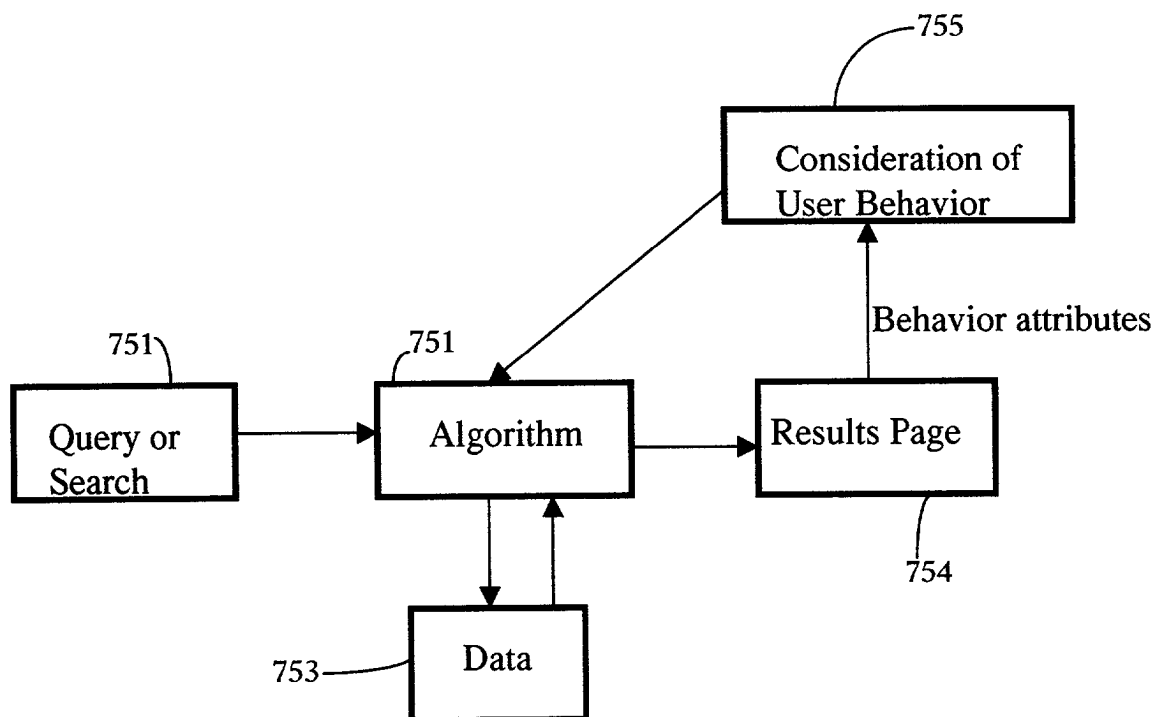mes rather than organizing them in number order or by address. Of course, this allows users to find a number in the book knowing only someone's name. This same principle applies in the databasing of machine-managed information, where for example, a computer-user may create a database for contact information perhaps using a program such as Microsoft Access. After creating the database (the information repository), the computer user must populate it with data—this being the actual list of contacts. Each contact (generically called a record in database terminology) might include a name field, an address field, a phone number field and any number of other fields pertaining to personal contact information. Once the database is populated, a user can typically retrieve information based upon

attributes of the data in one or more fields of the database. In summary, the data reorganizing (or pre-organizing) facilitates more easy retrieval of relevant information.

As databases and the records within them become larger, the reorganizing task can become larger and impede the ability to quickly and easily find relevant results. The problem is greatly increased when the exact form or nature of the records is inconsistent and not fully predictable. An example of this situation might be a document database wherein the records (documents plus attributes) are in variable forms (text, rtf, Microsoft Word, JPEG, TIFF etc.). In this type of database, a business manager might be looking for a certain report, but only recall two vague attributes about the report, possibly the month the document was created and the names of several people who might have created it. In this situation, the database will likely return a long list of documents every document created by one of the listed people during the specified month. Generally, the manager would then have very few options for further examining the long list. She could open each document and look at it or potentially look at the entire attribute list for each document. These options are unwieldy and time consuming and may not even ensure success.

An obviously large manifestation of this problem is in searching the world- wide-web or any web-like information collection (such as an intranet). Common search tools use various techniques to relate search terms or queries to web pages or web sites. The clear object is to find web pages that are most relevant to the search terms or query. However, given (i) the size and nature of the Internet and most intranets, and (ii) the skill level of most users, there is only a small likelihood of returning a single and perfect match for the search terms or query. Therefore, in order to increase the likelihood of retuning a perfect match, common search tools return an extremely long list of possible matches that are presented to the user in order of machine-determined relevance. This is very similar to the manager's document search problem discussed above. In the web context, the user is forced to click-through to successive documents on the list in order to determine the actual relevance to the search terms. This is clearly far less than ideal.

In order to improve this inefficiency, some products and services have returned an enhanced list, wherein each listing contains more information about the underlying record or document. Some examples of this information are (i) extra presumptively relevant textual information (ask.com, altavista.com, and yahoo.com); (ii) address information; (iii) revision information; or (iv) a small thumbnail image of the web page or document that a particular listing represents (capitalsearch.ca).

SUMMARY OF INVENTION

The inventions described here propose to mitigate the problems and challenges of analyzing the results of a database query or Internet or intranet search. In general, the inventions achieve this result by displaying preview information associated with each item on a list of results. In a very general sense, the preview information is a "preview window" containing some relevant preview information, such as a readable size image of the actual page or document associated with an item in the results list. Moreover, the ease of search-result navigation and analysis is further improved by opening the preview window when the user navigates over an intuitively connected place on the results page. The navigation takes place using any pointing or navigation device on the client system, for example, the mouse pointer,

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a touch screen or a sequential or moving highlight caused by a keystroke or combination of keystrokes. The invention further contemplates that a dedicated preview icon is beneficial and that such an icon can function as a menu for controlling previewing or that the icon could transform into such a menu. In addition to improving search result analysis the invention proposes improved search algorithms based upon attribute data from users' use of preview search results.

BRIEF DESCRIPTION OF DRAWINGS

A better understanding of the invention can be had when the following detailed description of the preferred embodiments is considered in conjunction with the following drawings, in which:

FIG. 1 shows a generic search results page (59) and two web pages (57 & 58) associated with specified results on the results page.

FIG. 2 shows a generic search results page, demonstrating embodiments of the invention.

FIG. 3 shows a generic search results page, demonstrating embodiments of the invention.

FIG. 4 shows a generic search results page, demonstrating embodiments of the invention.

FIG. 5 shows potential preview icon implementations.

FIG. 6 shows a network, including the Internet.

FIG. 7 is a flow diagram associated with the invention.

DETAILED DESCRIPTION

I. Concepts in Implementation

Referring to FIG. 1, web page 59 refers to a generic and imaginary search- results page as displayed by a generic browser. The context for search-results page 59 is that an Internet search for "Jet" has just been completed (thus the word "Jet" remaining in search entry box 50). A first result 53 is shown along with a second result 54 and an nth result 56. In addition, web page 57 is the actual web page referred by and associated with first result 53 (as displayed by a generic browser). Typically, all or some portion or portions of first result 53 will be a hyperlink or hyperlinks to web page 57. Preview Icon 63 is associated with search result 53 and will be explained later. Similarly, web page 58 is the actual web page referred by and associated with second result 54. Hyperlinks 67 and 68 show that the character strings "737-500 Jets" and www.Boeing.com serve as hyperlinks perhaps to web page 58 and the Boeing home page respectively. As discussed in the background, generally first result 53 is presumptively more relevant to the search term "Jet" than second result 54 and certainly more relevant than nth result 56.

Mouse pointer 52 is a common pointer as may be controlled by a standard mouse, trackball, keyboard pointer, touch screen or any user manageable device (hereinafter the term "mouse pointer" is used in the broadest sense the context permits to refer to any one or more of these navigation tools). Using various commercially available software and hardware, mouse pointer 52 can visually appear as nearly any object a user desires. A user may navigate around search-results page 59 by using the motion of mouse pointer 52 and a combination of well-known and well-documented keystrokes.

II. Mouse-over Creates Preview

Referring back to search-result page 59 as a whole, recall that this is a result returned after a user has performed a search on the term "Jet." The user must then analyze those results and will typically do so using the combinations of

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keystrokes and the pointer tool. A feature of the current invention is that the user is shown preview information when the mouse pointer 52 navigates or passes over a defined area such as first defined area 60, second defined area 61, or other defined areas 62, 64, 66, 67, 68 (Hereinafter, the action of navigating or passing the mouse pointer over a region is referred to as a "mouse-over"). The defined areas are program-designated (perhaps with JavaScript) areas on results page 59. While these defined areas could be made visible, they are generally invisible to the user. In one embodiment, upon a pre-defined placement or action of the pointer (e.g. a mouse-over), instructions are sent to the user's web browser to automatically open an embedded preview window and render the relevant contextual information inline with the user's results. In various implementations of the invention, defined areas may be in any shape or size, located anywhere on the page and may be configured by a programmer, the user, or any process with sufficient access to the system.

III. Many Types Of Preview Information

Differing implementations of the invention allow for virtually any type of preview information to be shown to the user. The preview information shown when there is a mouse-over of defined area 60 will generally be intuitively related to the page content surrounding defined area 60. For example a mouse-over defined area 60, might cause display of the actual content or the web page referred by or associated with first result 53 (such as web page 57).

Rather than displaying the actual content referred by and associated with a result, the same mouse-over might cause the system to display information merely related to the actual content of web page 57. For example, related preview information may include web pages with relevant and similar content to web page 57. In addition, related information may also include a list of URLs representing all or some of the links contained or identified in web page 57. Similarly, related information might include a list of URLs of either (i) web pages that link to web page 57 or (ii) the entire website that web page 57 resides in. With respect to URLs used as preview information, in some embodiments of the invention these URLs will function as links. Furthermore, in order to reduce the appearance of aesthetic information overload, a user or programmer may control the maximum number of URLs displayed in a single preview.

Alternatively, the same mouse-over might cause display of contextual information about web page 57 such as a view of the home page associated with web page 57 or other pages within the same domain as web page 57. In this case, several pages might be displayed (either overlapping or adjacent) as preview information. The invention contemplates that the user or a programmer might configure how to sort the pages returned as preview information, for example, they may be sorted by relevance to the query, or they may be in a fixed order such as home page on top.

The invention also contemplates that the user or a programmer might configure how to sort the pages returned as preview information by hits to a page. This is the sorting of the pages under a specific domain based on the number of hits that each page has had (not based on a popularity algorithms that requires a specific query- url pair and would not be appropriate here). For example, presume a mouse-over of a result indicating the page www.shoes.com/loafers. The preview may show associated pages shoes.com ranked only by the search authority's record of the number of hits that each page has had over a specified period. Therefore, the user might see #1) shoes.com (300 hits in the past year); #2)

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shoes.com/locations (200 hit in the last years) and, #3) shoes.com/sneakers (100 hits in the last year), etc.

Other contextual information that might be displayed as a preview includes the creation date of a web page, the last refresh date of a web page, the file size of a web page, the number of links-in on a web page, or the number of links-out on a web page. Contextual information might also include information regarding the URL registration pertaining to web page **57** (such as its owner, location, or registration date.), or information regarding the URL itself (such as its geographic location). In addition, the same mouse-over of defined area **60** might cause display of preview information to aid in further search, such as the identity of web pages or sites similar or related to web page **57**. Similarly, the preview information might actually be one or more pages from a similar site. In fact, these two techniques may be cascaded in that a first preview window may display a list of similar sites or pages and then as each item in the list is moused-over, a preview of the referenced site or page may be displayed. Expanding on this cascading concept, further or more efficient search may be aided by using preview displays to help drill through a directory structure. In particular, each mouse-over of an item would display the list of applicable sub-categories, then each mouse-over of one of the subcategories would display a further list of sub-sub categories and so on.

In the same context, further search efforts might be aided by providing another set of search results as preview information. This is particularly applicable to a mouse-over proximate to a suggested alternative search term or query (virtually all commercial search tools offer suggestions for alternative search terms or queries). In this embodiment, the system executes a new search when the user mouses-over an alternative search term and the preview window displays what is effectively a new search results page (typically containing 10 results).

In addition to being informational in such a way as to aid analysis, the invention contemplates preview information that is transformative. For example, a mouse-over of defined area **60** may cause display of a language translation of web page **57**. This feature and other types of transformative functions can be implemented generally two ways. One general method is to pre-transform all or some of the target pages of information at an appropriate time, such as by submitting the pages to a machine translator proximate to the return of the search results. Alternatively, the target information may be submitted to a machine translator upon the mouse-over of defined area **60**. In either case, the preview information displayed would be the output of the translator. Another transformative preview might be a definition, or a list of synonyms or antonyms. The techniques for implementing this mirror the translation example. For such a transformative uses, the invention contemplates that the user or a programmer may designate the file size available for transformation and the percent of file to be transformed.

The preview information may also be pre-aged by the programmer for the benefit of the providing of a message that may or may not intuitively relate to the defined area. An example of this type of preview information would be a logo, an advertisement, an instruction or any text or graphic message designated by the programmer. In this same context, the programmer of a web page may tag certain information on her pages for use by those accessing the web page, especially robots (like crawlers and spiders) assembling information to aid users to find the page. These tags would define what preview information the web page creator intends for use by a preview-generating search tool.

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As discussed in examples above, the invention allows for the type of preview information to be fixed or user-programmable. Specifically, a user or programmer may decide what type of preview information is displayed either dynamically (based upon operational context such as the page content and user mousing/keystrokes) or in a fixed way (e.g., the page referred by and associated with the result is always displayed). In one embodiment, all the information displayed is configurable in the "conf"file and is determined by a programmer that owns or controls the web page displaying the search results. A "conf" or configuration file sets the variable parameters of an application. For example a configuration file sets the number of search results for a results page (typically **10**), but this number can be increased or decreased in the configuration file. In some ways the Page Setup feature in MS Word is similar to a configuration file. In the first instance (page size) the configuration file is managed by the back end (meaning by the programmer at the website or search provider) while in the Page Setup example the conf file is accessible to the user.

Accordingly, in various embodiments, the invention may be deployed such that a user or the programmer may select one or more of the following: location of the defined area (either as a technical location on the page or by relation to visible text or graphics on the page); size of the defined area; and which type of preview information to associate with the each defined area.

IV. Preview Icons

Result analysis is clearly aided by previewing web page **57** when there is a mouse-over of defined area **60**. This is because web page **57** is the actual web page referred by and associated with first result **53** and defined area **60** is intuitively related—by partial co-location—to first search result **53**. The intuitive connection and analysis benefit remains for any approximate co-location of a search result with a defined area. In addition, however, a strong intuitive connection is made between a search result and a separately located defined area if the defined area overlaps some visual indication of its relevance and/or it is logically located with respect to the search result. There are several embodiments of the current invention that exploit this principle. Referring again to FIG. **1**, preview icon **63** is located on web page **59** in a place that is logically related to first result **53**. Furthermore, defined area **64** is on web page **59** partially co-located with preview icon **63**. When the user mouses-over defined area **64** (and approximately over preview icon **63**), the preview information is displayed (in this case web page **57**).

The preview icon **64** offers advantages in that it alerts a user to the preview feature and then allows the user to purposefully select preview using only navigation of mouse pointer **52**. Furthermore, the preview icon **63** may be a control panel to control the users options for some or all of the functionality related to the preview function. In addition, the preview icon may transform (either by click, time latency or other input mechanism) into a control panel for the same reasons.

V. Multiple Previews Per Result

The invention contemplates that two or more previews may be used with the same result. Referring again to FIG. **1**, nth result **56** is partly co-located with both defined area **66** and defined area **62**. The invention provides that mousing-over each defined area will produce a different preview result, for example different types of preview information (discussed above) or different mechanisms for the presentation of the preview (discussed below).

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<table>
<tr><td>7</td><td>8</td></tr>
</table>

VI. Displaying Previews

The invention contemplates that the preview information may be displayed in any manner that the client system may facilitate. Commonly, the preview information may be displayed in a Frame opened proximate to the time of the mouse-over. In particular, one embodiment calls for an Inline Frame that opens proximate to the time of the mouse-over and endures approximately until the mouse-over ends or the user exercises a commit or control. However, the preview information may also be displayed in one or more new browser windows opened under or over the current window or in a window which already exists on results page **59** such as preview window **55**, which can be located anywhere on results page **59**. Excepting the fixed preview window concept, the invention contemplates that the user can dynamically control the location of the preview window, its size and the duration of its visibility. This allows the user to leave the preview window open while freeing the cursor to move elsewhere and perform other functionality. This feature can be implemented with standard Windows-type mouse and key movements. In the case of a fixed preview window **55**, all the same attributes are also controllable, but typically only by a programmer with sufficient access. In addition, the invention contemplates that a programmer or user may control all the functional attributes of a preview window. The following are examples of these controllable functional attributes: (i) the use of a scroll bar; (ii) enabling a hyperlink so that a mouse-over or a click on a link within a previewed page is active and results in a call to the referenced page; (iii), enabling further mouse-over, which allows the user to use her mouse-over in the preview pane; or (iv), or disabling java, or other languages including but not limited to JavaScript, flash, VBScript, Jscript, or DHTML. Lastly, either a user or programmer might also control content filtration such as enabling a porn filter with the use of a preview. This would be useful in protecting those sensitive to explicit information and may be performed by passing the preview information through a filter prior to its display in a preview window. In addition, the preview fiction in general allows users to minimize their exposure to undesired information.

Previews are not necessarily limited to visual information, they can be comprised of audio or any other sensory information that may be encoded in a web page or result and then conveyed to a user over a network for re-creation by the user's client machine.

VII. Relating Icons and Defined Areas

Referring to FIG. **2**, preview window **250** is fixed at the top of the page. As discussed earlier, the invention contemplates that preview windows may be placed wherever esthetically or functionally useful. Also on FIG. **2**, first result **251** corresponds with defined area **254** and preview icon **257**. In this case, defined area **254** is larger and shaped differently than preview icon **257**. This arrangement may have several advantages. First, for quicker navigation and previewing, the larger defined area facilitates showing the preview if the pointer gets close to the preview icon. Second, the larger defined area **254** may be used as an indication that the pointer is approaching the preview icon **257**. This indication may initiate the loading of the preview and thereby have some or all of the loading completed by the time the pointer mouses-over the icon **257**. Adding another defined area more precisely co-located with icon **257** may enhance this technique. Having two defined areas in this configuration (one larger than icon **257** and one precisely co-located), allows the system to begin loads when the point gets in the area of icon **257** but only display preview

information if there is an actual mouse-over the icon **257**. This will make the load time appear to be smaller than it actually is. This technique could also be combined with other techniques to speed the loading of information. For example, loading speed may be increased by limiting the nature of the information such as a limitation to text or compressed graphics. Loading may also be accelerated by limiting the quantity of information loaded such as by specifying a size limit (bytes) or degrading the image by loading only some of the information (e.g. every other bit of a bmp file).

Continuing on FIG. **2**, first result **251** may contain various information, including a title, descriptive text, excerpt text and a link to the referred web page. Any one or combination of these items may be individually co-located with a defined area that will provide a preview during a mouse over. By using multiple defined areas, a variety of information about the referred web page could be previewed simply by navigating the mouse pointer, for example, mousing-over the title might cause a preview of contextual information about the referred page, mousing-over the descriptive or excerpt text might cause a preview of the actual referred page, and mousing-over the link might cause a preview of information about the link. It is noteworthy that, except for the link, any of the information items (title, text etc.) need not be hyperlinks.

Further discussing FIG. **2**, second result **252** corresponds with defined area **255** and preview icon **258**. In this case, the invention contemplates that the defined area may be smaller that the preview icon. In addition, FIG. **2** shows third result **253**, which corresponds to defined area **256** and preview icon **259**. While defined area **256** and preview icon **259** are not shown precisely co-located, the drawing is provided to indicate that the invention contemplates perfectly co-located and co-shaped defined areas and preview icons, which of course might include preview information such as text.

VIII. Floating Preview Windows

Referring now to FIG. **3**, first result **350** corresponds with defined area **354** and preview icon **355**. When the mouse pointer is over defined area **354**, floating preview window **358** appears and displays whatever preview information has been defined. Floating preview window **358** covers whatever information is below it on the web page. The invention contemplates that floating preview window **358** may cover the web page portions below it (presumably second through fifth results in this case) either completely, in opaque fashion or semi-translucent fashion. The invention contemplates that a semi-translucent window would allow the user to simultaneously see the information in the window and below the window on the web page.

Referring again to FIG. **3**, result **351** is partially co-located with defined area **356** and defined area **356** is approximately co-located with the title of Sixth result **351**. In this arrangement, a mouse-over in the area of the title will cause the floating preview window **358** to appear and display the program designated preview information. Similarly, the arrangement surrounding seventh result **352** allows the same type of preview to arise from a mouse-over in the area of the result text (which is partially co- located with defined area **357**).

In any case of a floating preview window (and most other preview windows), the invention contemplates that a user may use any combination of pointer navigation and clicks or keystrokes to commit (click-through) to the result, or initiate controls over the preview window such as its endurance, location and size or event the type of preview information.

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IX. Multiple, Simultaneous Preview Windows

Referring now to FIG. **4**, a search result web page is shown with three preview windows **454**, **456** and **457**. The invention contemplates preview information displaying simultaneously in two or more windows or frames contained on one or more display devices (or any device that may appropriately reproduce the type of preview information). The invention further contemplates any of the following: all the windows may be fixed on the web page; all the windows may float or appear during the mouse-over; or some windows may be fixed on the web page and others may appear or float during the mouse-over. For example, in one embodiment, a mouse-over defined area **458** (partially co-located with preview icon **459**) would display the web page referred by and associated with result **451** in preview window **457**. Simultaneously, contextual information regarding result **451** would display in preview window **454** and the home page associated with result **451** would display in preview window **456**. In another example, preview window **457** would have the same purpose as the first example, while preview windows **454** and **456** would display information associated with the next and previous search results respectively. These examples are only illustrative of the concepts that multiple preview windows may be used to display any of the preview information discussed herein using windows that are either fixed or appearing during mouse-over.

X. A Technical Example

Some of the more technical attributes of the invention are demonstrated with this example of a user's experience. The user enters a search query into a search system on a client-computing device. The search system returns a results page having JavaScript and DHTML technology. Like the other search results pages discussed herein, the results page also has a finite number results, each including a title, some descriptive text and the relevant URLs. Some or all of the URLs may be web hyperlinks to web pages relevant to the search query. When the user mouses-over a defined area (which corresponds to a hyperlink in this case), JavaScript operates to open a window near the mouse pointer. The resident web browser then fetches the page of preview information and displays a scaled version of the page (in this case 33%) in the window. The page may include gifs, HTML, DHTML, JavaScript, Flash and other browser cognizable content. The user may then commit by clicking through on the preview or the link. The user may also initiate a menu or control system for controlling the function of the available preview functions. Finally, the user may simply move the pointer away, which will cause the window to close.

In this example, the size of the preview box is controlled by a set pixel height and width of the Iframe attribute. The content is shrunk by setting the "ZOOM"stylesheet attribute, which is part of the Cascading Style Sheet offering within Internet Explorer 5.5.

A sample hyperlink follows:

<a class=link onMouseOver="return previewWindow ('<IFRAME height=600 width=800 src=http://www.wine-lovers-page.com/STYLE=zoom:33%;></IFRAME>');" onMouseOut="nd( );" href=http://comet.directhit.com/fcgi-bin/RedirURL.fcg?url=http://www.wine-lovers- page.com/&qry=wine&rnk=4&cz=2661b9d2a06c9edc&src=DH_ comet_SRCH>Wine Lovers' Page/Front Page

This link instructs the browser to open up an inline frame that is 800×600 pixels with the resulting page's URL as its source. It then reduces the size of this frame, and it's content by 66% (to 33% scale) and places the inline frame underneath the user's mouse pointer.

XI. Enhanced Preview Icon

Referring to FIG. **5**, three potential preview icon implementations are shown **550**, **551** and **552**. Referring to preview icon implementation **550**, preview icon **556** is partially co-located with defined area **553** so that when a mouse-over occurs in the area of preview icon **556** (precisely anywhere over defined area **553**), the preview information will display. Advancing on this concept is preview icon implementation **551**, wherein preview icon **557** is divided into two regions, each region being partially co-located with its own defined area, in this case **554** and **555**. The concept of separating regions in the preview icon allows the user to dynamically and automatically determine what to preview. One example is to allow the user to select between a text-only preview and a full preview—allowing users to choose a preview based upon their patience for the loading of the speed of their connections.

Advancing further on the concept, preview icon implementation **552** demonstrates that the preview icon may have several regions to offer choices or may even be a collection of apparently separate icons for the same reason. Of course, each region would be associated with a proximately located defined area (not shown for preview icon implementation **552**). In practice, a user would simply mouse-over a portion of the preview icon to indicate an instruction for the system to display the designated preview. The invention contemplates that a user might commit to the preview with a click or keystroke combination.

Advancing yet further on the concept, a preview icon may change form upon the users choice, indicated by a mouse click, a keystroke or combinations of those actions. For example, a search result page may feature preview icons resembling implementation **550**. After display of the preview information, the user may click on preview icon **556** causing it to transform to a menu-type preview icon like implementation **552**. The invention contemplates that the preview icon may transform into any other type of preview icon or into any type of menu system, such as the common menu systems for MS Windows-based software products. The invention also contemplates that a click or keystroke combination with respect to a more simple preview icon implementation (like **550**) may separately initiate a control menu system or create a separate preview icon allowing more complex controls of the preview functions (like implementation **552**).

XII. Network Context

During the past several years, many believe that the interconnection between computers (the "network") has become more prominent and important than the computing itself. For this reason, the invention shall be briefly explained within the context of the network. Referring to FIG. **6**, an imaginary and typical network is shown including the Internet. User computers **657** connect to each other as well as other portions of the network through switching devices **650** such as hubs, routers, switches, bridges and other devices, which are commonly known in the area of networking. The network also includes servers **653** (many of which include mass storage devices such as disk drives) and the Internet **651**. Other intelligent devices may attach to the network such as dedicated storage devices and virtually all forms of intelligent machines and appliances. All of these items are connected together by a series of information links including switching devices **650**. Some links may use conductive wires and others may be wireless (using radio waves or light), or fiber optic (using light and light-carrying cable).

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Information is carried across the network in small pieces, typically called packets or frames. A system originating information will create packets, put an address on the packets and send them out over the network destined for the addressed system. Intermediary switching devices **650** or servers **653** or other intelligent devices may manipulate the packets. They may disassemble and reassemble the same or different packets, add or delete data and information or send original messages to the addressee or source. The packets containing the original information eventually propagate through the network and reach their destination.

In the context of the current invention, searching or querying typically originates at a user computer **657**, and the query typically travels over the network to a data source (usually, but not always associated with a server **653**). An intelligent system services the query at or near the data source and sends the result back, over the network, to the user computer **657** that originated the request. While the entire process might occur on a single computer or system, the network is typically the medium that allows search and query of very large information stores and for this reason disserves mention along with the current invention. In most embodiments of the current invention, virtually all the preview information must traverse the network. Control information also usually traverses the network but sometimes may exist in a program at the user' terminal.

Within the network context, there are several architectures that may be used to construct systems that exploit the invention. Some examples follow. In one implementation, the preview document may be retrieved from a cache maintained near the data store and probably by the authority that performs the search. In this instance, before forwarding across the network to the user, the preview information can be accessed local to the database and the preview page could be pre-cleansed of offensive content such as unwanted JavaScript.

In a second implementation, whether cached or not, the preview information can be converted to an image file at the site of the search provider. Like the pre- cleansing above, this would avoid offensive program content. However, this may also increase latency to deliver the preview across the network to the user machine.

In yet a third implementation, the search provider might place a re-direct between the user and the preview information (in this case HTML). This layer between the user and the search service creates an opportunity to remove offensive program content.

The possibilities for architectures are limitless and might include using Java or JavaScript techniques disable offensive content or to speed up the pages' entrance into the users' browser cache.

In addition to highlighting architectural options, the network context also raises implementation options. For example, consider the case when the user mouses- over the first result and the system calls across the network for preview information relating to that first result, presumably from the search authority. The search authority may then identify the first result as part of a special group or program and return preview information according to that special status rather than the preview information otherwise applicable to the first result. This type of special grouping or status may be part of a paid inclusion program to generate revenue for the search authority.

XIII. Improving Search Results

Preview information provides users with a tool to efficiently and thoroughly evaluate search results prior to committing to a click through. There are aspects of the users'

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evaluation processes that may be useful in factoring how well the search result matched the query for any particular user and query. Referring to FIG. **6**, a client system **657** may be configured to monitor the keystrokes, mousing and related timing for a user reviewing a search results page that was generated elsewhere on the network and is viewed on the client system **657**. The results of the monitoring (or attributes) may then be sent across the network to the either the search provider or the owner of the web page hosting the search.

At a very high conceptual level, this is explained with reference to FIG. **7**, wherein a query or search **751** is submitted to an algorithm **752** for searching a large data store **753**. The algorithm **751** and/or the data store **753** may contain information about millions of documents and web pages but also about common queries and relevance factoring. A combination of the algorithm **751** and the data store **753** generate a results page **754**, which generally lists documents or web pages that relate to the query in the order of their perceived relevance. The invention contemplates that the user's use of preview information is monitored while the user evaluates the results page. More particularly, the invention contemplates that there is monitoring of any or all of the following: (i) which result is being previewed by order or rank, (ii) the length of each preview, (iii) the order of previewing, (iv) the number of results previewed per page, and (v) whether there is a click-through. These attributes of the user behavior may be forwarded across the network to a program-designated place and later used in a consideration process, which will lead to conclusions about the relevance of the results originally presented. These conclusions can be used to alter the algorithm and/or data so that the same or similar queries will yield more relevant results.

Some examples of conclusions that can be made from monitoring attributes are as follows.

A long duration of preview time indicates more relevance to a particular result and, depending on that result''' original ranking, a higher relevance ranking may be due. A very short duration indicates the opposite.

The number or percentage of previews per search page indicates how easy the user could find an acceptable document. For example, if the user previewed only two documents before a click-through, then an acceptable result was easy to find. If the user previewed all the results on a results page, then the result was less easy to find, and the eventual click-through was less likely to have been ideal to the user (the assumption is that she settled after looking for a while).

The rank of a previewed site may be relevant in that a preview indicates user interest. Therefore, if the original rank was low, there may be cause for alteration.

The order of preview is also of interest in that previewed results are presumptively more relevant and non-previewed results were seemingly easily eliminated and therefore presumptively far less relevant.

These techniques may be combined with other searching techniques such as those discussed in U.S. Pat. No. 6,182, 068 entitled Personalized search methods.

XIV. Non-limitation.

Because many varying and different embodiments may be made within the scope of the inventive concept herein taught, and because many modifications may be made in the embodiments herein detailed in accordance with the descriptive requirement of the law, it is to be understood that the details herein are to be interpreted as illustrative and not in a limiting sense.

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Titles and subtitles used in the text are intended only as focal points and an organization tool. These titles are not intended to specifically describe the applicable discussion or imply any limitation of that discussion.

The invention claimed is:

1. In a system having a display device and user input mechanisms including a pointer, a query result page comprising:

a plurality of results, each associated with an item in a data store of information;

a plurality of defined areas, each associated with at least one such result;

a first defined area arranged to intuitively imply a relation with respect to a first result;

a first data item in said data store, referred by and associated with said first result;

at least one preview window associated with said result page and displaying preview information regarding said first result when said pointer navigates over said first defined area,

wherein the at least one preview window is fixed in size, shape and location upon said query results page, and

wherein the size, shape and location of said preview window is configurable by the user,

yet fixed after configuration.

2. The invention of claim 1 wherein the at least one preview window first appears locating floating proximate in location to said pointer.

3. A method of providing preview information comprising the steps of:

providing a preview icon, in textual, graphic or combined form, that contextually indicates the availability of preview information;

providing a search result associated with said preview icon;

providing one or more defined areas, each that is at least partially co-located with said preview;

providing one or more display windows;

displaying in one or more said display windows, preview information intuitively related to said search result; and

converting said preview icon into a menu upon user indication.

4. A method of providing preview information comprising the steps of:

providing a preview icon, in textual, graphic or combined form, that contextually indicates the availability of preview information;

providing a search result associated with said preview icon;

providing one or more defined areas, each that is at least partially co-located with said preview;

providing one or more display windows;

displaying in one or more said display windows, preview information intuitively related to said search result; and

expanding the functional options available through said preview icon upon user indication.

* * * * *

Exhibit E

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Titles and subtitles used in the text are intended only as focal points and an organization tool. These titles are not intended to specifically describe the applicable discussion or imply any limitation of that discussion.

The invention claimed is:

1. In a system having a display device and user input mechanisms including a pointer, a query result page comprising:

a plurality of results, each associated with an item in a data store of information;

a plurality of defined areas, each associated with at least one such result;

a first defined area arranged to intuitively imply a relation with respect to a first result;

a first data item in said data store, referred by and associated with said first result;

at least one preview window associated with said result page and displaying preview information regarding said first result when said pointer navigates over said first defined area,

wherein the at least one preview window is fixed in size, shape and location upon said query results page, and

wherein the size, shape and location of said preview window is configurable by the user,

yet fixed after configuration.

2. The invention of claim 1 wherein the at least one preview window first appears locating floating proximate in location to said pointer.

3. A method of providing preview information comprising the steps of:

providing a preview icon, in textual, graphic or combined form, that contextually indicates the availability of preview information;

providing a search result associated with said preview icon;

providing one or more defined areas, each that is at least partially co-located with said preview;

providing one or more display windows;

displaying in one or more said display windows, preview information intuitively related to said search result; and

converting said preview icon into a menu upon user indication.

4. A method of providing preview information comprising the steps of:

providing a preview icon, in textual, graphic or combined form, that contextually indicates the availability of preview information;

providing a search result associated with said preview icon;

providing one or more defined areas, each that is at least partially co-located with said preview;

providing one or more display windows;

displaying in one or more said display windows, preview information intuitively related to said search result; and

expanding the functional options available through said preview icon upon user indication.

* * * * *

US006349330B1

(12) **United States Patent**
Bernadett et al.

(10) Patent No.: **US 6,349,330 B1**
(45) Date of Patent: **Feb. 19, 2002**

(54) **METHOD AND APPPARATUS FOR GENERATING A COMPACT POST-DIAGNOSTIC CASE RECORD FOR BROWSING AND DIAGNOSTIC VIEWING**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/186,217**

(22) Filed: **Nov. 3, 1998**

Related U.S. Application Data

(60) Provisional application No. 60/064,817, filed on Nov. 7, 1997.

(51) Int. Cl.^{7} **G06F 15/16**
(52) U.S. Cl. **709/219**; 382/128; 709/218
(58) Field of Search 709/231, 246, 709/247, 217, 218, 219; 705/2, 3; 128/904, 920; 345/115, 424, 158; 351/212; 382/128, 299, 232, 244

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(57) **ABSTRACT**

Server accessible case records are generated for post-diagnostic and remote access viewing. First, a master sequence of digital video images is recorded. Next, a post-diagnostic case record is generated including a sequence of thumbnail images and a single lossless still image selected from the master sequence of images. The images of the post-diagnostic case record are formatted to be accessible by a browser over a dial-up connection. Each image of the sequence of thumbnail images includes a selection of interior pixels of one of the digital video images of the master sequence. The sequence of thumbnail images is a selection of consecutive images from the master sequence. The post-diagnostic case record and the master sequence are then stored on an image server. The master sequence is archived onto a secondary archive medium after a predetermined time.

38 Claims, 1 Drawing Sheet
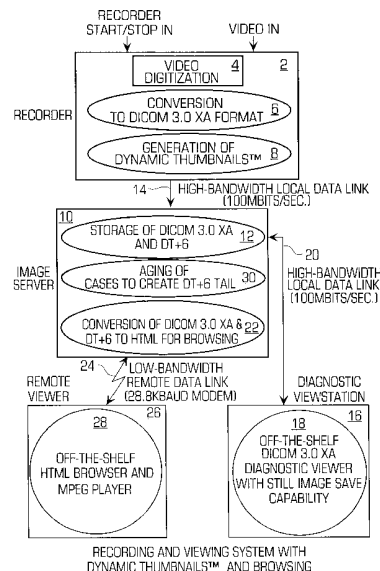
RECORDING AND VIEWING SYSTEM WITH DYNAMIC THUMBNAILS™ AND BROWSING

RECORDING AND VIEWING SYSTEM WITH
DYNAMIC THUMBNAILS™ AND BROWSING

FIG. 1

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METHOD AND APPPARATUS FOR GENERATING A COMPACT POST-DIAGNOSTIC CASE RECORD FOR BROWSING AND DIAGNOSTIC VIEWING

This application claims the benefit of U.S. Provisional Patent Application No. 60/064,817, filed Nov. 7, 1997.

This application is submitted with a computer program listing appendix on a compact disc containing copyrighted material. The appendix consists of one compact disc with 5 files entitled:

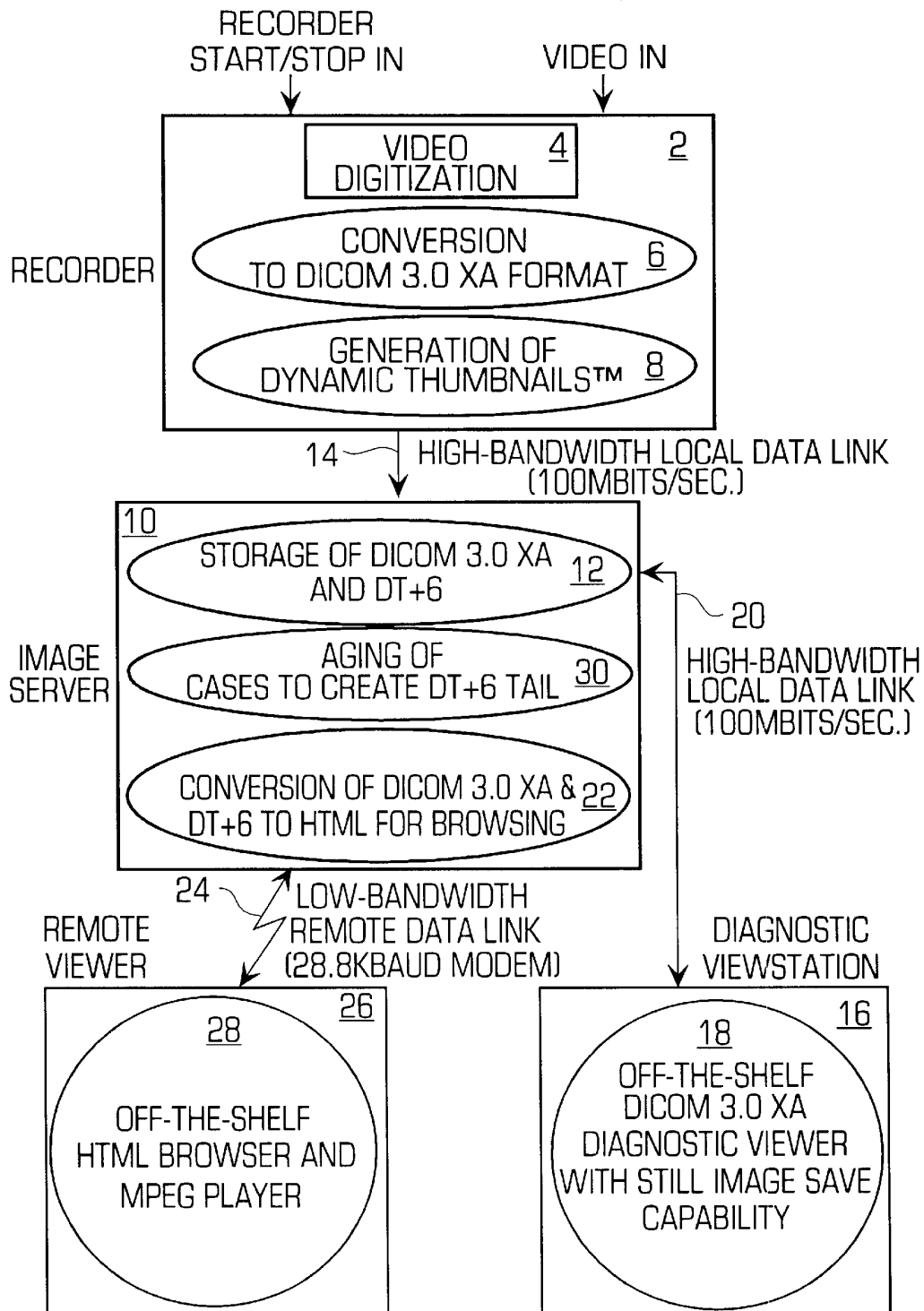getimage.txt (text file) 13 KB Created: Dec. 21, 2000

agecases.txt (text file) 31 KB Created: Dec. 21, 2000

compress.txt (text file) 36 KB Created: Dec. 21, 2000

savegs.txt (text file) 4 KB Created: Dec. 21, 2000

showgs.txt (text file) 8 KB Created: Dec. 21, 2000

The contents of the compact disc are incorporated herein by reference. A duplicate copy of the compact disc was filed. The copyright owner has no objection to the facsimile production by anyone of the patent document or the patent disclosure, as it appears in the Patent and Trademark Office patent file or records, or otherwise reserves all copyright rights whatsoever in the appendix.

FIELD OF THE INVENTION

The present invention relates to the recording, storing, viewing and archiving of digital images, and more particularly, to converting digital images into dynamic video and HTTP formats to develop a server accessible case record including a dynamic video series of images and a lossless still image, and archiving in a timely manner the complete image data for a case.

BACKGROUND

Graphic images can generally be stored on magnetic media and magneto-optical disks, or CD-Roms. Graphic images are stored in two general formats, JPEG and GIF.

JPEG is a graphics format with suffix ".jpg" while the other popular graphics format is graphical interchange format (GIF) graphics with suffix ".gif." GIF is the most widely used graphics type. However, an advantage of JPEG is that it offers a higher degree of compression, allowing graphics files to occupy less disk storage space, i.e., fewer databits, than GIF, and consequently so that a picture or graphics file stored using JPEG can be transmitted faster.

Compression programs (e.g., Winzip for Windows and Stuffit Expander for Mac) utilize repetitiveness in data files to substitute simple symbolic representations for larger data strings each time the data strings appear. Decompression programs later restore the data back to full form by re-substituting the data strings for their simple symbolic representations.

Many images can be JPEG compressed to as much as 10:1 without undue distortion of the image. The amount of tolerable compression that an image can withstand generally depends on the complexity of the image. If the image has large areas of nonvariant or periodic chromatic integrity, then the image may be compressed a great deal. If the image is a random sea of static image, then no compression is possible, if the goal is to achieve a resulting "lossless" image. A lossless image is one whose resolution is not diminished by compression.

As a simple example, if an image has at least 4 contiguous pixels per localized color unit, then a 4:1 compression will not alter the resolution of the image at all, rendering it

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lossless, and yet the 4:1 compression will reduce transfer times to almost ¼ of their uncompressed times. Higher compression will render the resulting image at least fractionally "lossy" but will nevertheless often be desirable to minimize memory storage space usage and data transfer times. An appropriate balance must be carefully determined by a user, with shorter transfer times and lower usage of storage space advantages on one side, and clearer resolution on the other.

Plug-ins, usually having the .DLL (dynamic link library) suffix, are often used to facilitate browser access capabilities. Plug-ins enhance a browser's ability to access data and media of different types and come in many varieties. Common browsers utilize many plug-ins seamlessly to increase web data and media type access. Plug-ins often allow web pages to assimilate video and audio, thus allowing web pages to have multimedia prowess. Common plug-ins for web browsers include Netscape's LiveVideo and LiveAudio, Macromedia's director, Adobe's Acrobat and Apple's QuickTime.

A CGI (Common Gateway Interface) script is a program that is run on a web server, usually linking the server with another program running on the system such as a database. Typically, a browser requests a URL, which is the script, from the server which executes the script. The script then operates and passes output from other programs back to the server which passes the information back to the browser. Note that CGI scripts can be other than scripts. They can be, e.g., batch files or other executable programs

A server typically has a finite amount of "on-line" image storage space. It is thus often necessary to use "off-line" or "near-line" storage for image archiving. Problematically, images archived to off-line or near-line storage are not as readily accessible in real time as those stored on an image server.

An important practical area for minimizing the storage requirements for lossless images is in angiography, or cardiac imaging. From an angiogram, a doctor can tell whether abnormal blood flow is occurring within the patient's heart. Angiograms are especially useful when electrocardiograms, computed tomography (CT), nuclear magnetic resonance (NMR) and other non-invasive techniques fail to reveal critical information required for proper diagnosis.

Cardiac images are often stored using Dicomed format, and specifically, ACC/ACR-NEMA DICOM 3.0 exchange media CD-Rom format. These images can be stored as lossless JPEG images with approximately 2:1 compression ratio and a resolution of 512×512.

A Thumbnail image is a single frame inline GIF or JPEG, which is taken from the middle of a sequence of images. The Dicom format includes single image 128×128 or 256×256 thumbnails taken from the middle of a sequence of 521×512 resolution, 2:1 compression JPEG images.

A number of products have implemented a mixture of compression techniques and display mechanisms to reduce the bandwidth and storage requirements for video images. Eigen Dualpath (R) has matched the speed of read/write optical drives and JPEG compression as a means to give real time, 1024×512 pixel dynamic review of cases off of slow media. Philips has produced a modification of the Dicom 3.0 XA standard, adding a lossy, compressed JPEG that would enable real time 521×512 pixel images from a CD-Rom format.

A problem with existing technology is that Dicomed formatted images are only conventionally convertible into single frame thumbnail images of 128×128 resolution. The

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single frame image can only yield static information concerning blood flow and cardiovascular blockage. Dynamic imaging, on the other hand, would provide insight into interrelationships within the heart including those of heart rate and blood flow velocity, flow paths and associated flow inhibitors, and cardio-irregularities and manifestations thereof. Dynamic Dicom-formatted images are not currently accessible via conventional internet browsers, with or without their plug-in companions.

Another problem with existing technology is its inability to retrieve single lossless images from Dicom 3.0 records and present them to a standard "off the shelf" internet browser. Conventional technology does not provide an HTTP or internet protocol to interface with Dicom 3.0 XA image records. This means that a remote cardiologist cannot perform analysis of cardiac images and angiograms by selecting a Dicomed image and converting it in real time for viewing via an internet browser. The use of a browser interface is also a low-training method of interacting with users. As hospitals, e.g., implement internet protocols to access and share data, presenting cardiac images on an internet browser is desirable.

A still further problem with existing technology is that resolution of cardiac images is not adequate to meet the bio-medical requirements of today. Single frame conversion of Dicomed formatted images at 128×128 resolution, as is the conventional limitation, must give way to better resolved imaging capabilities.

It is thus desired to have a readily accessible case record including a lossless image of the biomedical subject of examination by a physician. It is also desired to have video images for examination of dynamic biological functions, such as the beating of a human heart. It is understood that a solution for satisfying these desires will take into account the limited storage space of the image server to be utilized for storing the lossless stills and the dynamic video.

SUMMARY OF THE INVENTION

The present invention provides means to use HTTP and internet protocols to interface with, e.g., DICOM 3.0 XA image records. Dynamic video, or a Dynamic Thumbnail™, is generated and stored initially along with the complete case record on an image server in DICOM format, and particularly DICOM 3.0 XA format and/or an updated version thereof. The Dynamic Thumbnail™ is then accessible with a diagnostic viewer and/or an internet browser. Single lossless images are user selected and converted to HTTP format in real time for downloading by the browser. A low-bandwidth modem may be used to access the single image and/or Dynamic Thumbnail™ using the browser. When connected by a high speed network, e.g., 100 base-T, cases can be reviewed using "off-the-shelf" ACC/ACR-NEMA DICOM 3.0 XA exchange media (CD-R) format viewers as a plug-in to a standard browser.

The Dynamic Thumbnail™ and the user selected single lossless image are preferably stored together to form a post-diagnostic record of a medical case. Also, means for accessing the entire video from which the Dynamic Thumbnail™ and selected single images are derived is included in the case history, along with patient demographic and study textual information. The Dicom and HTTP formatted image (s) each have a high resolution capability. After a predetermined period of time has passed, the full case record is archived, leaving the single lossless still image and/or the Dynamic Thumbnail™, and the patient demographic and study textual information on the server. Preferably, patient

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demographic and study textual information, the Dynamic Thumbnail™, the lossless still image and means for accessing them are included in the post-diagnostic case history left behind when the complete case record is archived.

After another, far longer period of time has passed, the post-diagnostic case record is also archived automatically in accord with server storage space requirements. In this way, the post-diagnostic case record remains accessible on the server for a far longer period of time then it would be possible to store the complete case record, given storage space limitations.

In a preferred method of the invention, server accessible case records are generated for post-diagnostic and remote access viewing. First, a master sequence of digital video images is recorded. Next, a post-diagnostic case record is generated including a sequence of thumbnail images and a single lossless still image selected from the master sequence of images. The images of the post-diagnostic case record are formatted to be accessible by a browser over a dial-up connection. Each image of the sequence of thumbnail images includes a selection of interior pixels of one of the digital video images of the master sequence. The sequence of thumbnail images is a selection of consecutive images from the master sequence. The post-diagnostic case record and the master sequence are then each stored on an image server. The master sequence is archived onto a secondary archive medium after a predetermined time.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a block diagram illustrating the steps for taking a digital video recording and converting it into Dynamic Thumbnails™ and HTML viewable images for browsing.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 includes a series of major rectangular blocks which represent PC or workstation-class computers. Each workstation preferably includes a monitor, suitable input devices such as a keyboard and a mouse, and any data communication devices necessary to implement the data links shown in FIG. 1 and described in the specification. In FIG. 1, a minor rectangle within a major rectangle represents a further hardware component. The circles and ellipses represent software components.

Referring to FIG. 1, the present invention begins in a recorder workstation 2 represented by the first block having a video recorder 4 and a digital video recording of, for example, a series of cardiac images or angiograms. The images are preferably converted to Dicom 3.0 XA format, or specifically, to ACC/ACR-NEMA DICOM 3.0 exchange media, CD-Rom format by a first source code 6. Another format may be used in accord with the present invention which is readable by an appropriate and accessible diagnostic viewstation 16. The images preferably comprise 521×512 pixels, and may include 1024×512 pixels or any other suitable pixel arrangement.

A second source code 8, disclosed in the appendix and comprising a preferred embodiment of the present invention, entitled "compress.cpp" 8, generates a plurality of single thumbnail images of the original images forming a Dynamic Thumbnail™ or a video of the original images. Each of the Dynamic Thumbnail™ images in a preferred embodiment is 256×256 pixels, and may be further reduced to 240×240 pixels or may be 128×128 pixels or another pixel amount. Using compress.cpp 8, a group of DICOM formatted, thumbnail images, or a Dynamic Thumbnail™, is generated.

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Compress.cpp **8** is a plug-in which converts ordinary video images from a video recorder into Dynamic Thumbnail™ images.

Dynamic Thumbnail™ images are an ISO standard MPEG-1 file (or video file) generated by taking, e.g., in a preferred embodiment, the middle fifteen frames, or one second of images, out of the center of a larger sequence of images. This one second of Dynamic Thumbnail™ images may contain a complete cardiac cycle. In an exemplary embodiment, a 521×512 pixel image is "properly" filtered using a two dimensional filter to 256×256 pixels. By properly filtering in this way, maximum resolution is maintained without creating any aliasing or artifacts. The outer eight pixels are eliminated creating an image which is 240×240 in resolution. This resolution and frame rate brings the video loop within the MPEG-1 definition of a constrained bit rate, which is the least common denominator MPEG-1 stream definition and the one any MPEG-1 viewer can play. The image quality is equal to or better than VHS tape resolution. Dynamic Thumbnails™ are prepared for storage on an image server **10**, such as that represented by the second block.

The Dynamic Thumbnail™ video images, along with the original images in DICOM 3.0 XA format, are then stored on the image server **10** using a third source code **12**. The Dynamic Thumbnail™ images are ordered one after another such that when ordered consecutively, they comprise a dynamic video of, for example, one beat of a human heart. An image server **10** upload **14** of graphic images from the recorder workstation **2** to the image server **10** utilizes a high bandwidth local data link having a transfer rate of, e.g., 100 Mbits/sec.

All images including the Dynamic Thumbnail™ images on the image server **10** are then accessible from a diagnostic viewstation **16** using an "off-the-shelf" HTTP multimedia MPEG viewer such as Sparkle for Macintosh, or Nettube, or Media Player for Windows. In this way, a user may be far away from the location of stored images and be viewing the images. A diagnostic server access transfer, wherein Dynamic Thumbnail™ images are retrieved from the image server **10**, utilizes a high-bandwidth local data link **20**. This data link **20** may have a transfer speed of, e.g., ethernet 100 Mbits/sec. The viewstation **16** is preferably equipped with compress.cpp **8** and is on a high speed connection such as 100 Base-T ethernet or 155 Mbps ATM. The viewstation **16** can then retrieve images from the image server **10** using the DICOM 3.0 XA exchange software **18** as a plug-in to a standard browser. Thus, the viewer at the viewstation **16** can view the Dynamic Thumbnail™ images or the original images using a standard internet browser.

The Dynamic Thumbnail™ images can also be viewed on a remote viewstation **26** through a public carrier access **24**, for viewing by the user with an HTTP browser **28**. The remote user need only have a low bandwidth remote data link such as with a 28.8 Kbaud modem, accessed through a public carrier, to perform the download **24**.

Once the user views the Dynamic Thumbnail™ images, the user can select a desired single original image for further analysis by simply selecting the corresponding image from the Dynamic Thumbnail™ images. The image may be selected by the user from the diagnostic workstation. The image may also be selected by the user from a low bandwidth remote access data link. Once the image from the Dynamic Thumbnail™ images is selected, the program "getimage.cpp" **22** converts the corresponding original image in Dicom 3.0 XA format to HTML format and

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downloads the converted image over the link **20** or **24** for viewing by the diagnostic viewer **18** or the HTTP browser **28**.

The remote viewstation **26** can be connected to a network with a dial-up modem connection. In this way, getimage.cpp **22** can provide the user with access to Dynamic Thumbnails™ or lossless images for diagnostic purposes, including the ability to zoom and pan.

The Dynamic Thumbnail™ images can be downloaded over a 28.8 Kbaud dial-up modem in less than a minute, and over an ISDN connection in less than ten seconds. Each image of the Dynamic Thumbnail™ images, accessible via diagnostic server access transfer **20** to the diagnostic workstation **16**, or to the browser **28** via ordinary browser download **24**, will provide greater resolution than the single thumbnail image accessible via ordinary low-bandwidth download **24** of the prior art. In addition, many useful applications are possible for lower image quality, yet web accessible, video images, particularly in the medical profession.

The Dynamic Thumbnail™ images occupy low space on a server **10**, at about 90 Kbytes. Thus the original Dicom images may be transferred to a secondary archive medium for long term storage, leaving the Dynamic Thumbnail™ images on the server **10**. In that event, a history of Dynamic Thumbnail™ images of different cases can be left for immediate access from the server **10**. These Dynamic Thumbnail™ images are a useful tool for a health care worker to view and can provide sufficient information to answer his or her questions immediately. The images can suffice as a memory jogger for a busy health care worker and allow the health care worker to more fully recall a case once his or her memory has been refreshed. In any event, the health care worker always has the option of retrieving a full record for detailed review of any case from the long term digital archive.

A more complete diagnostic record is preferably provided when a selected full resolution lossless still image is saved along with the Dynamic Thumbnail™ in the case record kept on the image server **10**. This post-diagnostic record including the Dynamic Thumbnail™ and the lossless still image advantageously requires far less storage space than the complete case record. The server space needed in the preferred embodiment is on the order of 1/100 of that needed for the complete case record. The still image or images to be kept along with the Dynamic Thumbnail™ in the post-diagnostic case record are typically selected by the physician reviewing the case using, e.g., a DICOM 3.0 viewstation or a web browser. The physician may select particular images based upon their diagnostic significance to the case.

Advantageously, when connected to a network with a dial-up (modem) connection, the present invention provides Dynamic Thumbnails™ plus one or a small number of selected still images from the case. The physician may be able to obtain enough information via the modem connection to consult on the case without having to travel to the hospital, e.g., to use the viewstation to consult the complete case.

Another advantage accompanies the 1/100th storage space requirement of the post-diagnostic case record provided by the present invention as opposed to that for the complete case record. The full length lossless recording of the case can only be retained for a short time, e.g., four weeks, due to online storage costs and other limitations. The reduced space required of the post-diagnostic case record provided by the present invention allows it to be retained for

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far longer, e.g., a year or more on the image server **10**. By viewing a post-diagnostic case record stored on the server **10**, which is older than four weeks, the physician may have no need to restore the full case record to the server **10**, thereby reducing server storage and bandwidth requirements.

In fact, the Dynamic Thumbnail™/still image post-diagnostic case record combination occupies very little relative space on a disk based server **10** (e.g., 2 MB per case) compared with the complete case record (e.g., 200 MB per case). The present invention moves the full lossless case to a secondary archive medium, leaving the post-diagnostic case record behind on the server **10**. Thus, a long history of post-diagnostic case records may be left on the server for immediate access. A doctor always has the option of recalling the full case from the secondary archive media if the post-diagnostic record is deemed to be insufficient for present analytic purposes.

The image quality of the Dynamic Thumbnail™, together with the diagnostic quality of the still images, provides sufficient visual data to refresh the memory of a doctor who is reviewing the case. The doctor may need a memory jogger when reviewing a case for a return visit by a patient or following a referral.

As another advantage, the Dynamic Thumbnails™ and the still image(s) saved in the post-diagnostic case record are small enough to download over a 28.8 Kb modem connection in typically less than one minute. Downloading may be performed in less than ten seconds when an ISDN connection is used. Dynamic images and lossless stills may thus be viewed from remote distances over the dial-up connection in real time.

The temporal and spatial resolution of the Dynamic Thumbnail™ images is such that a pentium based PC has sufficient processing power to decode the MPEG-1 image in real time, thus permitting viewing of images on most modern PC's including laptops. In a preferred embodiment, shortened MPEG-1 files for dynamic viewing are added to a directory which contains each DICOM directory file.

The present invention also provides further source code **30** for automatically archiving complete case records based on the storage requirements of the image server. As new studies are stored on the server, they are archived within a predetermined timeframe to off-line or near-line media, such as digital tape. As available on-line storage space fills up on the image server, the full-length lossless image sequences from the least recently accessed studies are caused to be removed from the server by the "agecases.cpp" **30** software of the present invention. Agecases **30** leaves the DICOMDIR, containing the patient demographic and study textual information, along with the Dynamic Thumbnails™ and selected diagnostic still images intact in on-line storage.

Advantageously, the physician may use the post-diagnostic record remaining on the server **10** after the full case record has been archived, or "aged-off" the server **10** by the agecases **30** software. A primary physician may find the post-diagnostic record to be useful, e.g., as a reference for a return visit by a patient, which may eliminate the need to restore the full study record from off-line or near-line archive media. A consulting physician may also review the post-diagnostic record remotely at any time, using low-cost, low-bandwidth remote access **24**, such as with a modem or ISDN connection.

It is understood that the scope of the present invention is not limited to any of the examples or embodiments described above. It is intended that the appended claims alone define the scope of the invention.

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We claim:

1. A method of preparing a sequence of digital video images for diagnostic and post-diagnostic viewing and of preparing a lossless still image for remote viewing by the internet browser, comprising the steps of:

recording a master sequence of digital images;

selecting a smaller sequence of images from said master sequence of images, each image of said smaller sequence comprising a portion of a corresponding image of said master sequence, said portion of each selected image being less than the entire corresponding image; and

formatting the smaller sequence for viewing with the browser;

selecting an image from said master sequence of images;

formatting said image for lossless viewing by the browser; and

storing the master sequence, the smaller sequence and the formatted image onto said image server.

2. The method of claim **1**, further comprising the step of viewing said smaller sequence of images by a diagnostic viewer.

3. The method of claim **1**, further comprising the step of viewing said smaller sequence of images by an internet browser.

4. The method of claim **3**, wherein the formatting and storing step formats and stores the smaller sequence of images for viewing via said browser.

5. The method of claim **1**, wherein the recording step includes the step of formatting said digital images of said master sequence into Dicomed format for viewing with a Dicom diagnostic viewer.

6. The method of claim **1**, further comprising the step of archiving the master sequence off of the image server after a predetermined time.

7. The method of claim **1**, further comprising the step of storing retrieving means for retrieving the archived master sequence onto said image server.

8. The method of claim **1**, wherein the step of selecting the image for lossless viewing is performed via a low bandwidth remote access data link.

9. A method of generating and storing in a post diagnostic case record a sequence of digital video images and a lossless still image, comprising the steps of:

recording a master sequence of digital images;

selecting a smaller sequence of images from said master sequence of images, each image of said smaller sequence comprising a portion of a corresponding image of said master sequence, said portion of each selected image being less than the entire corresponding image;

formatting the smaller sequence for viewing with the browser;

selecting an image from said master sequence of images;

formatting said image for lossless viewing by the browser;

storing the master sequence, the smaller sequence and the formatted image onto said image server; and

archiving the master sequence off of the image server after a predetermined time.

10. The method of claim **9**, further comprising the step of viewing said smaller sequence of images by a diagnostic viewer.

11. The method of claim **9**, further comprising the step of viewing said smaller sequence of images by an internet browser.

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12. The method of claim 11, wherein the formatting and storing step formats and stores the smaller sequence of images for viewing via said browser.

13. The method of claim 9, wherein the recording step includes the step of formatting said digital images of said master sequence into Dicomed format for viewing with a Dicom diagnostic viewer.

14. The method of claim 9, further comprising the step of storing retrieving means for retrieving the archived master sequence along onto said image server.

15. A method of providing server accessible case records for post-diagnostic and remote access viewing, comprising the steps of:

recording a first sequence of digital video images;

generating a post-diagnostic case record including a second sequence of thumbnail images and a lossless still image from said first sequence of images, each thumbnail image of said second sequence including a selection of interior pixels of one of the digital video images of the first sequence, said second sequence including a selection of consecutive images from said first sequence; and

storing said post-diagnostic case record and said first sequence on an image server.

16. The method of claim 15, further comprising the step of viewing said post-diagnostic case record by a diagnostic viewer.

17. The method of claim 15, further comprising the step of viewing said post-diagnostic case record by an internet browser.

18. The method of claim 17, wherein the storing step formats and stores the post-diagnostic case record for viewing via said internet browser.

19. The method of claim 15, further comprising the step of archiving said first sequence onto a secondary archive medium after a predetermined time.

20. The method of claim 15, wherein said generating step includes formatting the images of the post-diagnostic case record to be accessible by a browser, the method further comprising the step of accessing said post-diagnostic case record using said browser.

21. The method of claim 20, wherein said accessing step is performed over a dial-up connection.

22. An apparatus for generating and storing in a post diagnostic case record a sequence of digital video images and a single lossless still image, comprising:

means for recording a master sequence of digital images;

means for selecting a smaller sequence of images from said master sequence of images, each image of said smaller sequence comprising a portion of a corresponding image of said master sequence, said portion of each selected image being less than the entire corresponding image,

means for formatting the smaller sequence for viewing with the browser;

means for storing the master sequence and the smaller sequence onto an image server;

means for selecting an image from said master sequence of images;

means for formatting said image for lossless viewing by the browser; and

means for storing the lossless image onto the server along with the smaller sequence and master sequence.

23. A recording medium readable by an information processing apparatus, tangibly embodying a program of

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instructions executable by the information processing apparatus to perform method steps for generating and storing in a post diagnostic case record a sequence of digital video images and a single lossless still image, said method steps comprising:

recording a master sequence of digital images;

selecting a smaller sequence of images from said master sequence of images, each image of said smaller sequence comprising a portion of a corresponding image of said master sequence, said portion of each selected image being less than the entire corresponding image;

formatting the smaller sequence for viewing with the browser,

wherein the program of instructions is further executable by the information processing apparatus for performing the steps of:

selecting an image from said master sequence of images;

formatting said image for lossless viewing by the browser; and

storing the lossless image onto the image server along with the master sequence and the smaller sequence.

24. An article of manufacturing comprising;

a computer useable medium having computer readable program code embodied therein configured to provide server accessible case records for post-diagnostic and remote access viewing, the computer readable program code comprising;

computer readable program code configured to cause the computer to record a first sequence of digital video images;

computer readable program code configured to cause the computer to generate a post-diagnostic case record including a second sequence of thumbnail images and a lossless still image from said first sequence of images, each thumbnail image of said second sequence including a selection of interior pixels of one of the digital video images of the first sequence, said second sequence including a selection of consecutive images from said first sequence; and

computer readable program code configured to cause the computer to store said post-diagnostic case record in said first sequence on an image server.

25. The article of manufacture of claim 24 further comprising computer readable program code configured to cause the computer to control a diagnostic viewer to view said post-diagnostic case record.

26. The article of manufacture of claim 24 further comprising computer readable program code configured to cause the computer to control an internet browser to view said post-diagnostic case record.

27. The article of manufacture of claim 26, wherein the computer readable program code configured to cause the computer to store is further configured to cause the computer to format and store the post-diagnostic case record for viewing via said internet browser.

28. The article of manufacture of claim 24 further comprising computer readable program code configured to cause the computer to archive said first sequence onto a secondary archive medium after a predetermined time.

29. The article of manufacture of claim 24 wherein said computer readable program code configured to cause the computer to generate further includes computer readable program code configured to cause the computer to format the images of the post-diagnostic case record to be acces-

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sible by a browser, and the computer readable program code in said article of manufacture further comprising computer readable program code configured to cause the computer to control said internet browser to access said post-diagnostic case record.

30. The article of manufacture of claim **29** wherein said access by said browser is performed over a dial-up connection.

31. A recording and viewing system comprising:

a recorder storing a first sequence of digital video images and generating a post-diagnostic case record including a second sequence of thumbnail images and a lossless still image from said first sequence of images, each thumbnail image of said second sequence including a selection of interior pixels of one of the digital video images of the first sequence, said second sequence including a selection of consecutive images from said first sequence; and

an image server storing said post-diagnostic case record in said first sequence.

32. The recording and viewing system of claim **31** wherein the image server provides the post-diagnostic case record to a diagnostic viewer.

33. The recording and viewing system of claim **31** wherein the image server provides the post-diagnostic case record to an internet browser.

34. The recording and viewing system of claim **33** wherein the image server formats and stores the post-diagnostic case record for viewing via the internet browser.

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35. The recording and viewing system of claim **31** wherein the image server provides the first sequence after a predetermined time to a secondary archive medium for storing therein.

36. The recording and viewing system of claim **32** wherein the recorder formats the images of the post-diagnostic case record for access by a browser and the browser accesses said post-diagnostic case record.

37. The recording and viewing system of claim **36** wherein the image server includes a dial up connection for accessing by the internet browser.

38. A system for providing server accessible case records for post-diagnostic and remote access viewing, comprising:

means for recording a first sequence of digital video images;

means for generating a post-diagnostic case record including a second sequence of thumbnail images and a lossless still image from said first sequence of images, each thumbnail image of said second sequence including a selection of interior pixels of one of the digital video images of the first sequence, said second sequence including a selection of consecutive images from said first sequence; and

means storing said post-diagnostic case record and said first sequence on an image server.

* * * * *

Exhibit F

US006301607B2

(12) **United States Patent**
Barraclough et al.

(10) Patent No.: **US 6,301,607 B2**
(45) Date of Patent: **Oct. 9, 2001**

(54) **ARRANGEMENT AND METHOD FOR DISPLAYING AND SHARING IMAGES**

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(73) Assignee: **Netergy Networks, Inc.**, Santa Clara, CA (US)

(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/181,140**

(22) Filed: **Oct. 27, 1998**

Related U.S. Application Data

(60) Provisional application No. 60/075,858, filed on Feb. 25, 1998, and provisional application No. 60/073,874, filed on Jun. 10, 1998.

(51) Int. Cl.⁷ G06F 15/16
(52) U.S. Cl. **709/204**; 709/217
(58) Field of Search 709/203, 204, 709/217, 218, 219, 227; 396/319; 345/356

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Primary Examiner—Patrice Winder

(57) **ABSTRACT**

According to an aspect of the disclosure, the present invention provides methods and arrangements for using the internet and an internet access appliance to share images, wherein the images are captured, downloaded, and sent to a server. At the server, the images are parsed and posted to a web page. Subsequent communication is automatically sent to individuals selected by the sender to notify them of the posting of new images. The present invention provides an effective and efficient manner in which to share images for business, marketing, and home use.
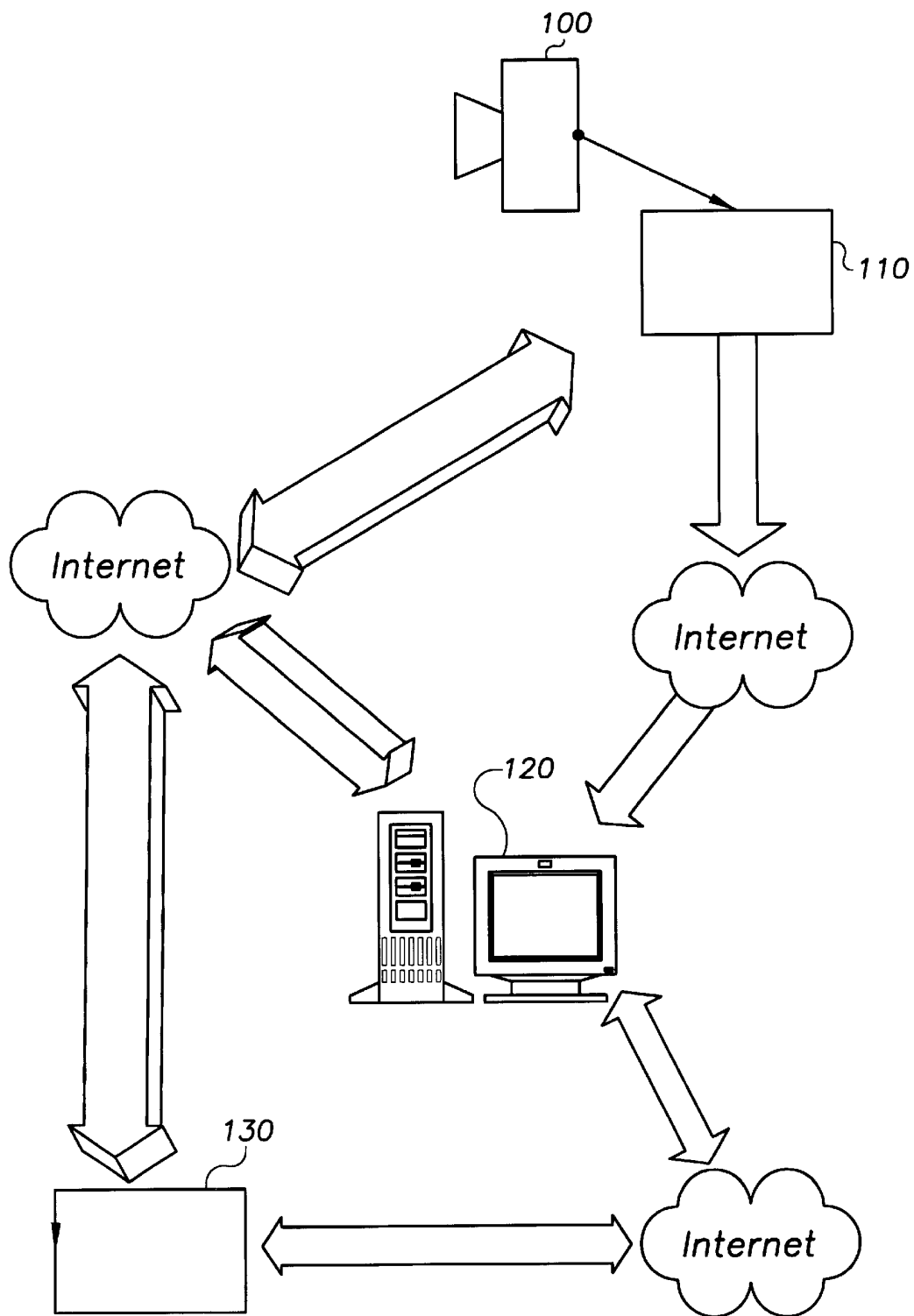
11 Claims, 1 Drawing Sheet
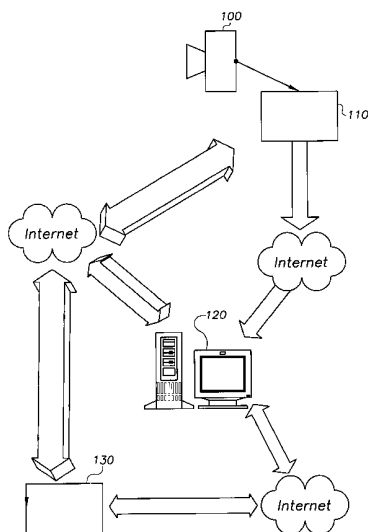
FIG.1

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ARRANGEMENT AND METHOD FOR DISPLAYING AND SHARING IMAGES

U.S. Provisional Application No. 60/073,874 (filed Feb. 6, 1998) and Ser. No. 60/075,858 (filed Feb. 25, 1998) are incorporated by reference and priority thereto is claimed.

FIELD OF THE INVENTION

The present invention relates to image retrieval and image transfer using commercially available communication channels such as POTS (plain old telephone service) lines, and a server system such as the Internet.

BACKGROUND

Devices for video and image capturing have evolved into common and affordable household tools. Such devices include digital cameras and videophones. The advancing technology is continually making such devices cheaper, easier to use, and more versatile.

Another advancing technology, the internet, has evolved into a common household tool used for fast and efficient communication of endless types of information. The methods of communication have been evolving rapidly and are growing in number. The communication of such information includes the display of fixed and video images. These images have been used both privately and commercially for purposes such as image sharing. Applications include the posting of images to a web page or BBS, and direct electronic delivery of the images to selected recipients.

Notwithstanding the existence of the foregoing advancements, endeavors such as photo developing businesses and real estate businesses have not yet realized the advantages, including the use of rapid image transfer, associated with these advancing technologies. Photo developing businesses continue to use archaic communication methods to submit photos to be processed, such as hand delivery or conventional mail. In addition, the sharing of images for selection for photo processing, such as between family members and friends, continues to be carried out through outdated methods, such as by the physical sharing or mailing of such images.

Real estate businesses also continue to use archaic communication methods. Physical presence at a real estate site and hand delivery of real estate pictures or videos to potential purchasers are common. Such photos or videos are not interactive, meaning the potential purchasers must search elsewhere, contact the realtor via other means, or travel to the real estate site in order to obtain further information. In addition, realtors continue to use manual communication to reach potential purchasers, such as by conventional newspaper advertisements, phone calls, or physical visits.

SUMMARY

The present invention is directed to a method of sharing and displaying images using an internet access appliance with internet telephony and image capture capability for commercial and non-commercial use.

According to an example embodiment, digital images are captured, downloaded to an internet access appliance with internet telephony and image capture capability, or downloaded directly to network storage through the network appliance (that may be transmitted with or without compression), attached to an electronic communication, and sent to a server where the images are parsed and posted onto a web page where they are stored, and subsequent communication is automatically sent to selected individuals. The images may comprise stationary and video images. The selected individuals may comprise family members, friends, target customers, and business associates.

The above summary of the present invention is not intended to describe each illustrated embodiment or every implementation of the present invention. The figures and the detailed description which follow more particularly exemplify these embodiments.

BRIEF DESCRIPTION OF THE DRAWING

Other aspects and advantages of the present invention will become apparent upon reading the following detailed description and upon reference to the drawing in which:

FIG. 1 is a flow diagram representing a method of using the internet to display and share images, according to particular embodiments of the present invention;

While the invention is susceptible to various modifications in alternative forms, specific embodiments thereof have been shown by way of example in the drawing and will herein be described in detail. It should be understood, however, that it is not intended to limit the invention to a particular form disclosed. On the contrary, the invention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention was defined by the appended claims.

DETAILED DESCRIPTION

In the following detailed description, reference is made to the accompanying drawing which forms a part hereof, and in which are shown by way of illustration specific embodiments in which the invention may be practiced. It is to be understood that other embodiments may be utilized and structural changes may be made without departing from the scope of the present invention.

According to an example embodiment, FIG. 1 shows a flow diagram of a system for displaying and sharing images using an internet access appliance with internet telephony and video capture capability. Images are captured with a digital camera or camcorder **100** and downloaded to an internet access appliance **110** with image capture capability. The images are attached to a first electronic communication and sent to a web server **120** via the internet. At the web server **120**, the images are parsed and posted to a web page on the internet. The images may comprise stationary and video images.

A second electronic communication is automatically sent from the web server **120** to individuals, selected by the sender of the first electronic communication, via the internet, notifying the individuals of the new posting on the web page. The selected individuals may comprise family members, friends, target customers, and business associates. The individuals visit the web page via the internet to view the new images using an internet access appliance with image capture capability **130**. The automatic delivery of the second electronic communication provides a highly efficient manner in which the sender of the first electronic communication can communicate with the selected individuals.

Information such as the sender's IP address, email address, web site address, or telephone number may be imbedded into, associated with or attached to the images posted on the web page. This information provides an easy way for the selected individuals to return a communication efficiently to the sender. Also, information such as

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descriptions, prices, and ordering details may accompany the images posted on the web page. This accompanying information may be used to describe the images, or list prices of goods for sale, or provide information such as availability, delivery costs, or other ordering information.

Selected individuals may visit the web page via the internet to view the new images using an internet access appliance **130**, as in FIG. **1**. An individual may click on a posted image with information that is imbedded, associated or attached, thereby initiating an internet phone call to the sender. The sender receives the call and a conference call is held while simultaneously accessing the images on the web page, using the internet access appliance **130**.

In addition, an individual may click on a posted image with information that is imbedded, associated or attached, thereby initiating an internet phone call to the sender. The sender receives the call and a conference call is held while simultaneously accessing the images on the web page, using the internet access appliance **130**, wherein the web page is interactive, such that the images can be altered or exchanged by one of the users, and wherein the alterations or exchanges are viewed by all users holding the conference call and simultaneously accessing the web page.

Furthermore, an individual may click on a posted image, thereby initiating an electronic communication to the sender, initiating access to another web page, or generating a facsimile.

The present invention greatly enhances communication abilities. For example, the use of this method in the operation of a real estate business broadens the abilities of realtors to communicate with customers, and provides a more cost effective way to do so. For instance, in an example embodiment of the present invention, a realtor can capture video images of real estate property, download them to an internet access appliance **110**, as in FIG. **1**, and send them to the server **120** where they are posted to a web site. Subsequent electronic communication is automatically sent to potential buyers of the real estate, as selected by the realtor, to inform them of the new posting. The potential buyers can then access the web site, using an internet access appliance **130**, and view the real estate video images. Information may be imbedded into the video images, allowing the potential buyers to click on the images and initiate communication with the realtor. The communication may be in the form of an internet phone call, wherein the realtor answers the call and discusses the real estate with the potential buyer.

Furthermore, the realtor and the potential buyer may simultaneously access the web site, wherein the realtor may alter the images in order to demonstrate certain aspects of the real estate, or the realtor may exchange the images on the site to show alternate images to the potential buyer. Additionally, the realtor may be present at the location of the real estate, and may use an internet access appliance with video capture and telephony capability **110** to capture further images of the real estate while holding an internet phone call with the potential buyer, and may download those video images and send them to the server **120**, where they are posted to the web site, and wherein the potential buyers can instantaneously view the newly posted images.

The present invention provides real-time, or nearly real-time, viewing of the real estate by the potential buyer, and allows the realtor to respond to the potential buyer's requests for images. For instance, the potential buyer could direct the realtor to capture images of certain parts of the real estate, such as asking to see a master bedroom in a house.

According to another example application, in the operation of a photo developing business, digital images are

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downloaded to the internet access appliance **110** and sent to the server **120** where they are parsed and posted to a web page, and subsequent communication is automatically sent to selected individuals, wherein the images are digital photographs, and the selected individuals are friends and family of the sender, and wherein the web page contains photo development ordering information, and wherein the images are developed into physical photographs as directed by the sender and the sender's friends and family as indicated on the web page with photo development ordering information.

For use in the operation of a photo and video developing businesses, according to an example embodiment of the present invention, as in FIG. **1**, digital photographs and videos of an event, such as a religious gathering or a wedding, may be downloaded to the internet access appliance **110** and sent to the server **120** where they are parsed and posted to a web site, and wherein subsequent communication is automatically sent to individuals, such as relatives and friends of those present at the event. For instance, a wedding couple and their relatives and friends can then access the web site, view the wedding photograph and video images, and select those photos or videos that they wish to have developed and delivered to them by making selections while accessing the web site.

For further use in the operation of a photo and video developing businesses, according to another example embodiment of the present invention, as in FIG. **1**, digital photographs and videos of a family gathering, such as a birthday or reunion, or digital photographs and videos of family members, may be downloaded to the internet access appliance **110** and sent to the server **120**. A subsequent electronic communication may be sent to family members. The family members can then access the web site using the internet access appliance **130**, view the images, and select those photos or videos that they wish to have developed and delivered to them by making selections while accessing the web site. This example embodiment of the present invention would be particularly useful for friends and family members who do not live near each other, yet wish to stay close to their friends and family, such as for grandparents who want to see their grandchildren grow up.

According to another example application, in the operation of a digital photograph processing business, digital images are downloaded to the internet access appliance **110** and sent to the server **120** where they are parsed, modified, and posted to a web page, and subsequent communication is automatically sent to selected individuals, wherein the images are digital photographs, and the selected individuals are friends and family of the sender, wherein the web page contains digital photo ordering information, and wherein the images are modified as directed by the sender and the sender's friends and family as indicated on the web page digital photo ordering information.

According to a further example embodiment of the present invention, the internet access appliance includes the use of the VC55 Set Top manufactured by 8×8, Inc., 2445 Mission College Boulevard, Santa Clara, Calif.

Although specific embodiments have been illustrated and described herein, it is appreciated by those of ordinary skill in the art that any arrangement which is calculated to achieve the same purpose may be substituted for the specific embodiments shown. This application is intended to cover any adaptations or variations of the present invention. Therefore, it is manifestly intended that this invention be limited only by the claims and the equivalents thereof.

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What is claimed is:

1. A method for displaying and sharing digital images using an internet access appliance with internet telephony and image capture capability, comprising the steps of:

capturing digital images of an item being viewed by a sender;

downloading the digital images to the internet access appliance or directly to network storage through the appliance;

including the digital images with a first email addressed to a server and sending the first email;

parsing the first email at the server and posting the images to a web page where the images are stored;

selecting at least one set of individuals for whom targeted images are to be sent, each set including at least one individual;

sending a communication to the at least one selected set of individuals to notify of the images posted to the web page; and

while viewing the item, using the internet access appliance to establish a telephony connection with said at least one individual who converses with the sender and concurrently reviews the posted images.

2. A method, according to claim 1, wherein the images are accompanied by descriptions, and are included with the first email as attachments.

3. A method, according to claim 1, wherein the images are posted onto a web page with information imbedded into

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them, wherein the selected individuals visit the web page to view the images.

4. A method, according to claim 3, wherein clicking on the images initiates an internet phone call to the sender.

5. A method, according to claim 4, wherein an internet phone conference call is held between the sender and the selected individuals while simultaneously accessing web pages with images.

6. A method, according to claim 3, wherein clicking on the images initiates an email letter to the sender.

7. A method, according to claim 3, wherein clicking on the images initiates access to the sender's internet web page.

8. A method, according to claim 1, wherein the images that are of low to medium resolution can be downloaded for viewing across the internet.

9. A method, according to claim 1, wherein the images that are of high resolution are stored for making professionally-developed reprints.

10. A method, according to claim 1, wherein the sender also uses the internet access appliance for conversing with said at least one individual.

11. A method, according to claim 1, wherein the sets of selected individuals comprise potential purchasers of real estate and wherein the digital images comprise images of real estate property.

*   *   *   *   *

Exhibit G

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Abstract:

Abstract: The popularity of the World Wide Web (WWW) has led to rapid growth of Web sites all over the world. Thousands of new Web pages are designed every day. Today, Web pages with embedded hyper-links rendered by Web browsers are only weak representation of the Web topology. Using static thumbnails (small images) of Web pages to represent relations of Web pages is an employed technique. Due to the limitations of permanent images, we propose a novel online service to provide up-to-date thumbnails of any Web pages. Online provided and dynamically generated thumbnails open new ways to represent the Web and enhance Web designers potentialities. As an application, we show a VRML-based user interface that visualizes a user's vicinity while browsing the Web. 1

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Citations

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1 Understanding Thumbnail Images, Montgomery County Public School – Arrington - 1996

1 Information technology: Computer graphics and image processing -- The Virtual Reality Modeling – unknown authors - 0

1 A VRML-based Visualization – Bonisch, Fiedler, et al. - 1997

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

GIRAFA.COM, INC.   )
)
                Plaintiff,   )
)
        v.   )   C.A. No. 07-787-SLR
)
AMAZON WEB SERVICES LLC,   )   **JURY TRIAL DEMANDED**
AMAZON.COM, INC., ALEXA INTERNET,   )
INC., IAC SEARCH & MEDIA, INC.,   )
SNAP TECHNOLOGIES, INC., YAHOO! INC.,   )
SMARTDEVIL INC., EXALEAD, INC., and   )
EXALEAD S.A.,   )
)
                Defendants.   )

ORDER

Having considered the Amazon Defendants' Motion for Leave to File Surreply (the

"Motion"),

IT IS HEREBY ORDERED, this _____ day of _____, 2008, that

the Motion is GRANTED. The Amazon Defendants' Surreply (Exhibit A to the Motion) and

Donoghue Declaration (Exhibit B to the Motion) are deemed filed and served as of the date of

this Order.

                                    _____
                                                 U.S.D.J